PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2003-070514
(43)Date of publication of application : 11.03.2003

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(51)Int.Cl.
A45B 9/04
A45B 3/00
G08G 1/005

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(21)Application number : 2001-263884
(22)Date of filing : 31.08.2001
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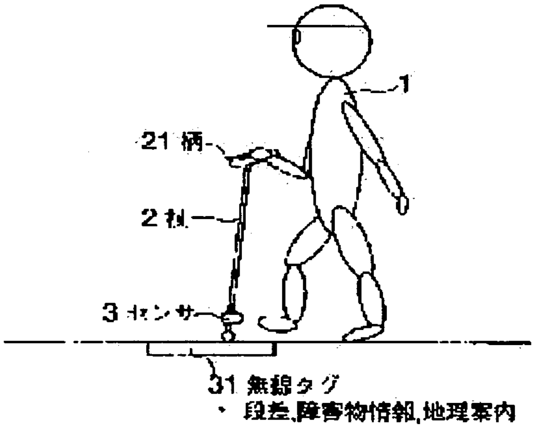
(54) HUMAN NAVIGATION STICK AND HUMAN NAVIGATION SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a human navigation stick and a human navigation system by utilizing a walking stick which aged people and week-sighted people usually use, and into which a sensor technology and an information-communication technology are compiled and made easy to be operated, so that obstacles and map information on a walking way are correctly conveyed to the stick user, whereby the navigation stick and system can function as a walk supporter enabling the stick user to walk easily and without anxiety even on a strange street.

SOLUTION: The human navigation stick is provided in the vicinity of the distal end section of the stick 2 with a sensor 3 which detects and outputs a physical signal among an optical, magnetic, and electrical signals, and a means among a sound or voice signal generating step 6, 61, a vibration generating step, a rugged pattern conveying step to fingers or a hand, a transmitting step on a radio, or the like, according to the output signal from the sensor 3.



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[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

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CLAIMS

[Claim(s)]

[Claim 1] The HYUMANNABI cane characterized by having the sensor which is attached near the point of a cane, detects a physical signal, and outputs a signal, and a means to generate a sound or a sound signal according to the output signal from said sensor, and changing.

[Claim 2] The HYUMANNABI cane characterized by having the sensor which is attached near the point of a cane, and detects and outputs a physical signal, and the shank which has at least one oscillating means to vibrate according to the output signal from said sensor, and changing.

[Claim 3] The HYUMANNABI cane characterized by making it change the oscillation frequency or the amplitude of said oscillating means in said HYUMANNABI cane according to claim 2 according to the output signal from said sensor.

[Claim 4] The HYUMANNABI cane characterized by having the shank which has a means for it to be attached near the point of a cane, to change a concavo-convex pattern according to the output signal from the sensor which detects and outputs a physical signal, and said sensor, and to transmit to a finger or a hand as Braille points or stippling, and changing.

[Claim 5] The HYUMANNABI system characterized by to have the sensor which is attached near the point of a cane, and detects and outputs a physical signal and the cane which has a transmitting means transmit the output signal from said sensor on radio, a receiving means receive and output the radio signal from the transmitting means of said cane, and a means generate a sound or a sound signal according to the output signal from said receiving means, and to change.

[Claim 6] The HYUMANNABI cane characterized by having the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and the shank which has at least one oscillating means to vibrate according to the output signal from said obstruction sensor, and changing.

[Claim 7] The HYUMANNABI cane characterized by having the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and the shank which has a means to change a concavo-convex pattern according to the output signal from said obstruction sensor, and to transmit to a finger or a hand as Braille points or stippling, and changing.

[Claim 8] The HYUMANNABI cane characterized by having the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and a means to generate a sound or a sound signal according to the output signal from said obstruction sensor, and changing.

[Claim 9] The HYUMANNABI system characterized by to have the cane which has a transmitting means transmit on radio the output signal from the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and said obstruction sensor, a receiving means receive and output the radio signal from the transmitting means of said cane, and a means generate a sound or a sound signal according to the output signal from said receiving means, and to change.

[Claim 10] The HYUMANNABI cane characterized by having the shank which has at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from said image pick-up means, and at least one oscillating means to vibrate according to the output signal from said image-processing means, and changing.

[Claim 11] The HYUMANNABI cane characterized by making it change the oscillation frequency or the amplitude of said oscillating means in said HYUMANNABI cane according to claim 10 according to the output signal from said image-processing means.

[Claim 12] The HYUMANNABI cane characterized by having at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from said image pick-up means, and a means to change a concavo-convex pattern according to the output signal from said image-processing means, and to transmit to a finger or a hand as Braille points or stippling, and changing.

[Claim 13] The HYUMANNABI cane characterized by having at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from said image pick-up means, and a means to generate a sound or a sound signal according to the output signal from said image-processing means, and changing.

[Claim 14] At least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from said image pick-up means, And the cane which has a transmitting means to transmit the output signal from said image-processing means on radio, The HYUMANNABI system characterized by having a receiving means to receive and output the radio signal from the transmitting means of said cane, and a means to generate a sound or a sound signal according to the output signal from said receiving means, and changing.

[Claim 15] The HYUMANNABI cane characterized by to have the obstruction sensor which is attached near the point of a cane, is attached in a shank or the part of a rod, detects an obstruction as the sensor which detects and outputs a physical signal, and a means generate a sound or a sound signal according to the output signal from said sensor, and outputs a signal, and the shank which have at least one oscillating means vibrate according to the output signal from said obstruction sensor, and to change.

[Claim 16] The HYUMANNABI cane characterized by to have the obstruction sensor which is attached near the point of a cane, is attached in the sensor which detects and outputs a physical signal, the shank which has at least one oscillating means vibrate according to the output signal from said sensor, a shank, or the part of a rod, detects an obstruction, and outputs a signal, and a means generate a sound or a sound signal according to the output signal from said obstruction sensor, and to change.

[Claim 17] The HYUMANNABI cane characterized by having the shank which has at least one oscillating means to vibrate according to the output signal from the sensor which is attached near the point of a cane, and detects and outputs a physical signal, the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and said sensor or said obstruction sensor, and changing.

[Claim 18] The HYUMANNABI cane characterized by having a means to generate a sound or a sound signal according to the output signal from the sensor which was attached near the point of a cane, and which detects and outputs a physical signal, the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and said sensor or said obstruction sensor, and changing.

[Claim 19] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The cane which has a transmitting means to transmit on radio the output signal from the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, said sensor, and said obstruction sensor, The HYUMANNABI system characterized by having a receiving means to receive the radio signal from the transmitting means of said cane, and a means to generate a sound or a sound signal according to the output signal from said receiving means, and changing.

[Claim 20] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, A means to generate a sound or a sound signal according to the output signal from said sensor, At least one image pick-up means attached in the shank or the part of a rod, and the means which output by performing an image processing using the output signal from said image pick-up means, The HYUMANNABI cane characterized by having the shank which has at least one oscillating means to vibrate according to the output signal from said image-processing means, and changing.

[Claim 21] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The shank which has an oscillating means to vibrate according to the output signal from said sensor, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from said image pick-up means, The HYUMANNABI cane characterized by having a means to generate a sound or a sound signal according to the output signal from said image-processing means, and changing.

[Claim 22] The HYUMANNABI cane characterized by to have the shank which has at least one oscillating

means vibrate according to the output signal from at least one image pick-up means which was attached near the point of a cane and attached in the parts of the sensor which detects and outputs a physical signal, and a shank or a rod, the image-processing means a means outputs by performing an image processing using the output signal from said image pick-up means, and said sensor or said image-processing means, and to change.
[Claim 23] The HYUMANNABI cane characterized by making it change the oscillation frequency or the amplitude of said oscillating means according to the output signal from said sensor or said image-processing means in a HYUMANNABI cane given in any 1 term of said claim 20 thru/or claim 22.
[Claim 24] The HYUMANNABI cane characterized by to have at least one image pick-up means which was attached near the point of a cane and attached in the parts of the sensor which detects and outputs a physical signal, and a shank or a rod, the image-processing means which output by performing an image processing using the output signal from said image pick-up means, and a means generate a sound or a sound signal according to the output signal from said sensor or said image-processing means, and to change.
[Claim 25] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, A means to generate a sound or a sound signal according to the output signal from said sensor, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from said image pick-up means, The HYUMANNABI cane characterized by having the shank which has two or more oscillating means to vibrate according to the output signal from said image-processing means, and changing.
[Claim 26] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The shank which has two or more oscillating means to vibrate according to the output signal from said sensor, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from said image pick-up means, The HYUMANNABI cane characterized by having a means to generate a sound or a sound signal according to the output signal from said image-processing means, and changing.
[Claim 27] The HYUMANNABI cane characterized by to have the shank which has two or more oscillating means vibrate according to the output signal from at least one image pick-up means which was attached near the point of a cane and attached in the parts of the sensor which detects and outputs a physical signal, and a shank or a rod, the image-processing means a means outputs by performing an image processing using the output signal from said image pick-up means, and said sensor or said image-processing means, and to change.
[Claim 28] The HYUMANNABI cane characterized by making it change two or more of said oscillation frequency or amplitudes of an oscillating means according to the output signal from said sensor or said image-processing means in a HYUMANNABI cane given in any 1 term of said claim 25 thru/or claim 27.
[Claim 29] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, A means to generate a sound or a sound signal according to the output signal from said sensor, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from said image pick-up means, The HYUMANNABI cane characterized by having the shank which has a means to change a concavo-convex pattern according to the output signal from said image-processing means, and to transmit to a finger or a hand as Braille points or stippling, and changing.
[Claim 30] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The shank which has a means to change a concavo-convex pattern according to the output signal from said sensor, and to transmit to a finger or a hand as Braille points or stippling, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from said image pick-up means, The HYUMANNABI cane characterized by having a means to generate a sound or a sound signal according to the output signal from said image-processing means, and changing.
[Claim 31] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from said image pick-up means, The HYUMANNABI cane characterized by having a means to change a concavo-convex pattern according to the output signal from said sensor or said image-processing means, and to transmit to

a finger or a hand as Braille points or stippling, and changing.
[Claim 32] The sensor which is attached near the point of a cane, and detects and outputs a physical signal, At least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from said image pick-up means, And the cane which has a transmitting means to transmit the output signal from said sensor and said image-processing means on radio, The HYUMANNABI system characterized by having a receiving means to receive and output the radio signal from the transmitting means of said cane, and a means to generate a sound or a sound signal according to the output signal from said receiving means, and changing.
[Claim 33] It is the HYUMANNABI cane characterized by being the signal of either light, the MAG or an electric signal as said physical signal in a HYUMANNABI cane given in any 1 term of said claim 1 thru/or claim 4, claim 6 or claim 8, claim 10 or claim 13, claim 15 or claim 18, claim 20, or claim 31.
[Claim 34] It is the HYUMANNABI system characterized by being the signal of either light, the MAG or an electric signal as said physical signal in a HYUMANNABI system given in any 1 term of said claim 5, claim 9, claim 14, claim 19, and claim 32.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the human navigation cane (a HYUMANNABI cane is called hereafter) which was applied to what supports a walk of elderly people, a dysopsia person, etc., especially used information communication technology, and a human navigation system (a HYUMANNABI system is called hereafter).
[0002]
[Description of the Prior Art] From the former, many canes have been used in order to support a walk of elderly people, a dysopsia person, etc., for example.
[0003] For elderly people, especially a cane serves as an important auxiliary implement for supporting the body in the case of a walk.
[0004] Moreover, for a dysopsia person, a cane serves as a means for recognizing a course, an obstruction, etc. at the time of a walk.
[0005] And a pedestrian recognizes by hand the level difference of a foot walk, and the feel which touches an obstruction etc. with a cane and is transmitted.
[0006] He puts in order and covers a foot walk, the platform of a station, etc. with the plate which has the irregularity of a certain decided pattern, and is trying to support a walk of a dysopsia person recently furthermore.
[0007] And a pedestrian can recognize a course, a zebra zone, etc. by touching this concavo-convex pattern with a cane.
[0008] However, the conventional cane is powerless, when recognizing the object which does not move fundamentally and recognizing what distance left for a while, what approaches, the thing which crosses its course, etc.
[0009] Moreover, in the case of elderly people, a forgetfulness symptom may come out during a walk, its current position may not understand anymore where it is, and it may be puzzled.
[0010] Especially the path along which it passes for the first time has problems, like big anxiety hangs around, in order to walk independently for elderly people or a dysopsia person.
[0011] Moreover, there is a seeing eye dog for a dysopsia person or a blind person. Since the often trained seeing eye dog teaches a master a level difference, a crossing or other obstructions, etc. faithfully and does not gallop in the trouble to other men, either, it can also get in an electric car together.
[0012] However, to the number of those who need the seeing eye dog, there are few seeing eye dogs and time amount and a help start training of a seeing eye dog.
[0013] Moreover, since it is a living thing, care, such as a meal and elimination, is needed and there is a problem of dying, if a life comes.
[0014] On the other hand, information communication link-ization progresses and a cellular phone, a PHS communication link, car navigation (car navigation), etc. are spreading.
[0015] Especially, recently, famous-place guidance etc. can be poured by wireless from an earth station, and a pedestrian can also hear this now with a portable type receiver.
[0016] However, walking around with a portable type receiver is a burden for elderly people, a dysopsia person, etc., and even if it has a portable type receiver, actuation is complicated and there are problems, like it is difficult to acquire [which is the need] required information by the way.

[0017]
{Problem(s) to be Solved by the Invention] As mentioned above, although a cane is convenient for elderly people, a dysopsia person, etc., there is a problem of being unable to recognize long distance thing or thing which moves, and a seeing eye dog has the problem that a number is insufficient and it does not obtain easily.
[0018] Furthermore, while computerization progresses, the handling of a device becomes complicated and there is a trouble not necessarily convenient for elderly people, a dysopsia person, etc.
[0019] The purpose of this invention is to offer the HYUMANNABI cane which can offer walk exchange so that a sensor technique and information communication technology may be made easy to use for the cane currently used usually, taking in on it, and elderly people, a dysopsia person, etc. may tell the obstruction and geographic information at the time of a walk more to accuracy, may feel easy also about the first path and can walk easily, and a HYUMANNABI system.
[0020]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, the HYUMANNABI cane of invention corresponding to claim 1 was attached near the point of a cane, and is equipped with the sensor which detects and outputs a physical signal, and a means to generate a sound or a sound signal according to the output signal from a sensor.
[0021] Therefore, in the HYUMANNABI cane of invention corresponding to claim 1, by putting point information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned, a sensor reads point information, such as geographic information and a level difference of a foot walk, changes this into voice (or sound), and tells a pedestrian. Thereby, walk exchange of elderly people, a dysopsia person, etc. can be offered.
[0022] Moreover, the HYUMANNABI cane of invention corresponding to claim 2 was attached near the point of a cane, and is equipped with the sensor which detects and outputs a physical signal, and the shank which has at least one oscillating means to vibrate according to the output signal from a sensor.
[0023] Therefore, in the HYUMANNABI cane of invention corresponding to claim 2, a sensor reads point information, such as geographic information, a level difference of a foot walk, and an obstruction, by putting point information, such as geographic information, a level difference of a foot walk, and an obstruction, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. And according to the output signal from a sensor, at least one oscillating means attached in the part of the shank of a cane is vibrated, and it tells human being's hand or finger. In this case, although ****** [the number of oscillating means / one], they become possible [telling much more detailed information] by using two or more oscillating means. Moreover, by being attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and choosing the oscillating means vibrated according to the informational contents, two or more oscillating means can grasp point information, such as an obstruction, in a detail further through the feeling of a hand or a finger, and can offer walk exchange of elderly people, a dysopsia person, a hearing impairment person, etc.
[0024] Furthermore, he is trying for the HYUMANNABI cane of invention corresponding to claim 3 to change the oscillation frequency or the amplitude of an oscillating means in the HYUMANNABI cane of invention corresponding to above-mentioned claim 2 according to the output signal from a sensor.
[0025] Therefore, in the HYUMANNABI cane of invention corresponding to claim 3, by changing the oscillation frequency and the amplitude of at least one oscillating means according to the contents of the information sent from a sensor, point information, such as an obstruction, can be further judged to altitude through the feeling of a hand or a finger, and walk exchange of elderly people, a dysopsia person, a hearing impairment person, etc. can be offered.
[0026] Moreover, the HYUMANNABI cane of invention corresponding to claim 4 was attached near the point of a cane, and is equipped with the sensor which detects and outputs a physical signal, and the shank which has a means to change a concavo-convex pattern according to the output signal from a sensor, and to transmit to a finger or a hand as Braille points or stippling.
[0027] Therefore, in the HYUMANNABI cane of invention corresponding to claim 4, a sensor reads the information on geographic information, the level difference of a foot walk, an obstruction, etc. by putting the information on geographic information, the level difference of a foot walk, an obstruction, etc. into the

wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. And according to the output signal from a sensor, the concavo-convex pattern attached in the part of the shank of a cane is changed, and it tells human being's hand or finger as Braille points or stippling. In this case, according to the informational contents, by changing a concavo-convex pattern, point information, such as an obstruction, can be grasped through the feeling of a hand or a finger, and walk exchange of elderly people, a dysopsia person, a hearing impairment person, etc. can be offered.
[0028] Furthermore, the HYUMANNABI system of invention corresponding to claim 5 was attached near the point of a cane, and is equipped with the sensor which detects and outputs a physical signal and the cane which has a transmitting means transmit the output signal from a sensor on radio, a receiving means receive and output the radio signal from the transmitting means of a cane, and a means generate a sound or a sound signal according to the output signal from a receiving means.
[0029] Therefore, in the HYUMANNABI system of invention corresponding to claim 5, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. And a receiving means by which the pedestrian has delivery and this independently on radio with the transmitting means in which the output signal from a sensor was contained by the cane receives, this is changed into voice (or sound), and it tells human being. That is, lightweight-ization of a cane can be attained by separating a means to generate a receiving means and a sound, or a sound signal from a cane. Moreover, it becomes possible to divert a cellular phone etc. as a receiving means, and an economical walk support system can be offered. Furthermore, improvement in the further function can be aimed at by combining the migration mold PC (personal computer) with a receiving means side. Thereby, advanced walk exchange can be offered to elderly people, a dysopsia person, etc.
[0030] On the other hand, the HYUMANNABI cane of invention corresponding to claim 6 was attached in the shank or the part of a rod, and is equipped with the obstruction sensor which detects an obstruction and outputs a signal, and the shank which has at least one oscillating means to vibrate according to the output signal from an obstruction sensor.
[0031] Therefore, in the HYUMANNABI cane of invention corresponding to claim 6, the obstruction sensor which used the supersonic wave etc., for example is attached in the shank of a cane, or the part of a rod, and the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected. And according to the output signal from the obstruction sensor concerned, at least one oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, although ****** [the number of oscillating means / one], they become possible [telling much more detailed information] by using two or more oscillating means. Moreover, two or more oscillating means are attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and can grasp the information on an obstruction etc. in a detail further through the feeling of a hand or a finger by choosing the oscillating means vibrated according to the informational contents. Furthermore, magnitude, a class, distance of an obstruction, etc. can be further judged in a detail through the feeling of a hand or a finger by changing the oscillation frequency and the amplitude of at least one oscillating means according to the contents of the information sent from an obstruction sensor. Thereby, advanced walk exchange can be offered to elderly people, a dysopsia person, a hearing impairment person, etc.
[0032] Moreover, the HYUMANNABI cane of invention corresponding to claim 7 was attached in the shank or the part of a rod, and is equipped with the obstruction sensor which detects an obstruction and outputs a signal, and the shank which has a means to change a concavo-convex pattern according to the output signal from an obstruction sensor, and to transmit to a finger or a hand as Braille points or stippling.
[0033] Therefore, in the HYUMANNABI cane of invention corresponding to claim 7, the obstruction sensor which used the supersonic wave etc., for example is attached in the shank of a cane, or the part of a rod, and the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected. And according to the output signal from the obstruction sensor concerned, the concavo-convex pattern attached in the part of the shank of a cane is changed, and it tells human being's hand or finger as Braille points or stippling. In this case, according to the informational contents, by changing a concavo-convex pattern, point information, such as an obstruction, can be grasped through the feeling of a hand or a finger,

and walk exchange of elderly people, a dysopsia person, a hearing impairment person, etc. can be offered.
[0034] Furthermore, the HYUMANNABI cane of invention corresponding to claim 8 was attached in the shank or the part of a rod, and is equipped with the obstruction sensor which detects an obstruction and outputs a signal, and a means to generate a sound or a sound signal according to the output signal from an obstruction sensor.
[0035] Therefore, in the HYUMANNABI cane of invention corresponding to claim 8, the obstruction sensor which used the supersonic wave etc., for example is attached in the shank of a cane, or the part of a rod, and the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected. And according to the output signal from the obstruction sensor concerned, this is changed into voice (or sound) and it tells human being. Thereby, walk exchange of elderly people, a dysopsia person, etc. can be offered.
[0036] It has the cane which has a transmitting means transmit on radio the output signal from the obstruction sensor which the HYUMANNABI system of invention corresponding to claim 9 is attached in a shank or the part of a rod further again, detects an obstruction, and outputs a signal, and an obstruction sensor, a receiving means receive and output the radio signal from the transmitting means of a cane, and a means generate a sound or a sound signal according to the output signal from a receiving means.
[0037] Therefore, in the HYUMANNABI system of invention corresponding to claim 9, the obstruction detection sensor which used the supersonic wave etc., for example is attached in the shank of a cane, or the part of a rod, and the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected. And a receiving means by which the pedestrian has delivery and this independently on radio with the transmitting means in which the output signal of the obstruction sensor concerned was contained by the cane receives, this is changed into voice (or sound), and it tells human being. That is, lightweight-ization of a cane can be attained by separating a means to generate a receiving means and a sound, or a sound signal from a cane. Moreover, it becomes possible to divert a cellular phone etc. as a receiving means, and a much more economical walk support system can be offered. Furthermore, improvement in the further function can be aimed at by combining the migration mold PC (personal computer) with a receiving means side. Thereby, advanced walk exchange can be offered to elderly people, a dysopsia person, etc.
[0038] On the other hand, the HYUMANNABI cane of invention corresponding to claim 10 is equipped with the shank which has at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and at least one oscillating means to vibrate according to the output signal from an image-processing means.
[0039] Therefore, in the HYUMANNABI cane of invention corresponding to claim 10, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. And according to the output signal from the image-processing means concerned, at least one oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, although ****** [the number of oscillating means / one], they become possible [telling much more detailed information] by using two or more oscillating means. Moreover, by being attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and choosing the oscillating means vibrated according to the informational contents, two or more oscillating means can grasp magnitude, a class, distance of an obstruction etc., etc. in a detail further through the feeling of a hand or a finger, and can offer walk exchange of elderly people, a dysopsia person, a hearing impairment person, etc.
[0040] Moreover, he is trying for the HYUMANNABI cane of invention corresponding to claim 11 to change the oscillation frequency or the amplitude of an oscillating means in the HYUMANNABI cane of invention corresponding to above-mentioned claim 10 according to the output signal from an image-processing means.
[0041] Therefore, it sets on the HYUMANNABI cane of invention corresponding to claim 11. By changing the oscillation frequency and the amplitude of at least one oscillating means according to the contents of the information sent from an image-processing means Magnitude, a class, distance of an obstruction, etc. can be further judged in a detail through the feeling of a hand or a finger, and it becomes possible to elderly people, a dysopsia person, a hearing impairment person, etc. to offer advanced walk exchange.
[0042] Furthermore, the HYUMANNABI cane of invention corresponding to claim 12 is equipped with at least one image pick-up means attached in the shank or the part of a rod, the image-processing means

which output by performing an image processing using the output signal from an image pick-up means, and a means to change a concavo-convex pattern according to the output signal from an image-processing means, and to transmit to a finger or a hand as Braille points or stippling.

[0043] Therefore, in the HYUMANNABI cane of invention corresponding to claim 12, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. In this case, although an image processing can also be carried out using the information from one image pick-up means, the magnitude of an obstruction, the distance to an obstruction, the passing speed of an obstruction, etc. can be recognized much more correctly by carrying out an image processing using the information from two or more image pick-up means. And according to the output signal from the image-processing means concerned, the concavo-convex pattern attached in the part of the shank of a cane is changed, and it tells human being's hand or finger as Braille points or stippling. That is, by changing a concavo-convex pattern according to the informational contents, the class of obstruction, magnitude, distance, etc. can be quickly judged through the feeling of a hand or a finger, and it becomes possible to offer walk exchange to elderly people, a dysopsia person, a hearing impairment person, etc.

[0044] Moreover, the HYUMANNABI cane of invention corresponding to claim 13 is equipped with at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and a means to generate a sound or a sound signal according to the output signal from an image-processing means.

[0045] Therefore, in the HYUMANNABI cane of invention corresponding to claim 13, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. In this case, although an image processing can also be carried out using the information from one image pick-up means, the magnitude of an obstruction, the distance to an obstruction, the passing speed of an obstruction, etc. can be recognized much more correctly by carrying out an image processing using the information from two or more image pick-up means. And according to the output signal from the image-processing means concerned, this is changed into voice (or sound) and it tells human being. Thereby, the class of obstruction, magnitude, the distance to an obstruction, etc. are told with voice (or sound), and become possible [offering walk exchange to elderly people, a dysopsia person etc.].

[0046] Furthermore, the HYUMANNABI system of invention corresponding to claim 14 The cane which has the image-processing means which outputs by performing an image processing using the output signal from at least one image pick-up means and an image pick-up means attached in the shank or the part of a rod, and a transmitting means to transmit the output signal from an image-processing means on radio, It has a receiving means to receive and output the radio signal from the transmitting means of a cane, and a means to generate a sound or a sound signal according to the output signal from a receiving means.

[0047] Therefore, in the HYUMANNABI system of invention corresponding to claim 14, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. In this case, although an image processing can also be carried out using the information from one image pick-up means, the magnitude of an obstruction, the distance to an obstruction, the passing speed of an obstruction, etc. can be recognized much more correctly by carrying out an image processing using the information from two or more image pick-up means. And a receiving means by which the pedestrian has delivery and this independently on radio with the transmitting means in which the output signal from the image-processing means concerned was contained by the cane receives, this received signal is changed into voice (or sound), and it tells human being. That is, lightweight-ization of a cane can be attained by separating a means to generate a receiving means and a sound, or a sound signal from a cane. Moreover, it becomes possible to divert a cellular phone etc. as a receiving means, and a more economical walk support system can be offered. Furthermore, improvement in service or a function can be aimed at by combining the migration mold PC (personal computer) with a receiving means side. Thereby, advanced walk exchange can be offered to elderly people, a dysopsia person, etc.

[0048] On the other hand, the HYUMANNABI cane of invention corresponding to claim 15 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, It has a means to generate a sound or a sound signal according to the output signal from a sensor, the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and the shank which has at least one oscillating means to vibrate according to the output signal from an obstruction sensor.

[0049] Therefore, in the HYUMANNABI cane of invention corresponding to claim 15, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned, a sensor reads point information, such as geographic information and a level difference of a foot walk, changes this into voice (or sound), and tells human being. Moreover, obstruction sensors, such as an ultrasonic sensor, are attached in the shank of a cane, or the part of a rod, and the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected, for example. And according to the output signal from the obstruction sensor concerned, at least one oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, according to the output signal from an obstruction sensor, magnitude, a class, distance of an obstruction, etc. can be judged by changing the oscillation frequency and the amplitude of at least one oscillating means. Moreover, point information, such as geographic information and a foot-walk level difference, can be grasped with voice (or sound) by the sensor of the point of a cane, and an obstruction and the thing which is moving can be quickly grasped through the feeling of a hand or a finger by the obstruction sensor. This becomes possible to elderly people, a dysopsia person, etc. to offer much more advanced walk exchange.

[0050] Moreover, the HYUMANNABI cane of invention corresponding to claim 16 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, It was attached in the shank which has at least one oscillating means to vibrate according to the output signal from a sensor, the shank, or the part of a rod, and has the obstruction sensor which detects an obstruction and outputs a signal, and a means to generate a sound or a sound signal according to the output signal from an obstruction sensor.

[0051] Therefore, in the HYUMANNABI cane of invention corresponding to claim 16, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. And according to the output signal from the sensor concerned, at least one oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, the contents of information, such as level difference information and the current position, are discriminable by changing the oscillation frequency and the amplitude of at least one oscillating means. Moreover, for example, it attached in the shank of a cane, or the part of a rod, by obstruction sensors, such as an ultrasonic sensor, the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected, this is changed into voice (or sound), and it tells human being. That is, point information, such as geographic information and a foot-walk level difference, can be grasped through the feeling of a hand or a finger by the sensor of the point of a cane, and an obstruction and the thing which is moving can be grasped with voice (or sound) by the obstruction sensor. This becomes possible to elderly people, a dysopsia person, etc. to offer much more advanced walk exchange.

[0052] Furthermore, the HYUMANNABI cane of invention corresponding to claim 17 was attached near the point of a cane, and is equipped with the shank which has at least one oscillating means to vibrate according to the output signal from the sensor which detects and outputs a physical signal, the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and a sensor or an obstruction sensor.

[0053] Therefore, in the HYUMANNABI cane of invention corresponding to claim 17, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. Moreover, the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected by the obstruction sensor which attached for example, used the supersonic wave etc. for the shank of a cane, or the part of a rod. And according to the output signal from the sensor concerned and an obstruction sensor, at least one oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, the contents of information, such as level difference information and the current position, are discriminable by changing the oscillation frequency and the amplitude of an oscillating means. That is, point information, such as geographic information and a foot-walk level difference, can be grasped by the sensor of the point of a cane, and an obstruction and the thing which is moving can be quickly grasped through the feeling of a hand or a finger by the obstruction sensor. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, a hearing impairment person, etc.

[0054] Moreover, the HYUMANNABI cane of invention corresponding to claim 18 is equipped with a means to generate a sound or a sound signal according to the output signal from the sensor which was attached near the point of a cane and which detects and outputs a physical signal, the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, and a sensor or an obstruction sensor.

[0055] Therefore, in the HYUMANNABI cane of invention corresponding to claim 18, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned.

[0056] Moreover, the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected by the obstruction sensor which attached for example, used the supersonic wave etc. for the shank of a cane, or the part of a rod. And according to the output signal from the sensor concerned or an obstruction sensor, required information is changed into voice (or sound), and it tells human being. That is, point information, such as geographic information and a foot-walk level difference, can be grasped by the sensor of the point of a cane, and an obstruction and the thing which is moving can be grasped with voice (or sound) by the obstruction sensor. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0057] Furthermore, the HYUMANNABI system of invention corresponding to claim 19 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The cane which has a transmitting means to transmit on radio the output signal from the obstruction sensor which is attached in a shank or the part of a rod, detects an obstruction, and outputs a signal, a sensor, and an obstruction sensor, It has a receiving means to receive the radio signal from the transmitting means of a cane, and a means to generate a sound or a sound signal according to the output signal from a receiving means.

[0058] Therefore, in the HYUMANNABI system of invention corresponding to claim 19, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. Moreover, the magnitude of the obstruction ahead of a pedestrian, a class, distance, etc. are detected by the obstruction sensor which attached for example, used the supersonic wave etc. for the shank of a cane, or the part of a rod. And a receiving means by which the pedestrian has delivery and this independently on radio with the transmitting means in which the output signal from the sensor concerned or an obstruction sensor was contained by the cane receives. And this received signal (information) is changed into voice (or sound), and it tells human being. That is, point information, such as geographic information and a foot-walk level difference, can be grasped with voice (or sound) by the sensor of the point of a cane, and an obstruction and the thing which is moving can be grasped with voice (or sound) by the obstruction sensor. That is, lightweight-ization of a cane can be attained by separating a means to generate a receiving means and a sound, or a sound signal from a cane. Moreover, it also becomes possible to divert a cellular phone as a receiving means, and an economical walk support system can be offered. Furthermore, improvement in service or a function can be aimed at by combining the migration mold PC (personal computer) with a receiving means side. Thereby, advanced walk exchange can be offered to elderly people, a dysopsia person, etc.

[0059] On the other hand, the HYUMANNABI cane of invention corresponding to claim 20 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, A means to generate a sound or a sound signal according to the output signal from a sensor, It has the shank which has at least one image pick-up means attached in the shank or the part of a rod, the means which output by performing an image processing using the output signal from an image pick-up means, and at least one oscillating means to vibrate according to the output signal from an image-processing means. Therefore, in the HYUMANNABI cane of invention corresponding to claim 20, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned, a sensor reads point information, such as geographic information and a level difference of a foot walk, changes this into voice (or sound), and tells human being. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. And according to the output signal from the image-processing means concerned, the oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, according to the output signal of an image-processing means, magnitude, a class, distance of an obstruction, etc. can be judged by changing the oscillation frequency and the amplitude of an oscillating means. That is, an obstruction and the thing which is moving can be quickly grasped with the feeling of a hand or a finger by being able to grasp point information, such as geographic information and a foot-walk level difference, with voice (or sound) by the sensor of the point of a cane, and carrying out the image processing of the image from at least one image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0060] Moreover, the HYUMANNABI cane of invention corresponding to claim 21 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The shank which has an oscillating means to vibrate according to the output signal from a sensor, and at least one image pick-up means attached in the shank or the part of a rod, It has the image-processing means which outputs by performing an image processing using the output signal from an image pick-up means, and a means to generate a sound or a sound signal according to the output signal from an image-processing means. Therefore, in the HYUMANNABI cane of invention corresponding to claim 21, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. And according to the output signal from the sensor concerned, the oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, the contents of information can be distinguished by changing the oscillation frequency and the amplitude of an oscillating means. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected, an image processing is carried out using the output signal from the image pick-up means concerned, this is changed into voice (or sound), and information, such as magnitude of an obstruction, and a class, distance, is told to human being. That is, an obstruction and the thing which is moving can be grasped with voice (or sound) by being able to grasp point information, such as geographic information and a foot-walk level difference, with the feeling of a hand or a finger by the sensor of the point of a cane, and carrying out the image processing of the image from at least one image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0061] Furthermore, the HYUMANNABI cane of invention corresponding to claim 22 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, It has the shank which has at least one oscillating means to vibrate according to the output signal from at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and a sensor or an image-processing means. Therefore, in the HYUMANNABI cane of invention corresponding to claim 22, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. And according to the output signal from the sensor concerned or an image-processing means, the oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, according to the output signal from a sensor or an image-processing means, the contents of information are discriminable by changing the oscillation frequency and the amplitude of an oscillating means. That is, an obstruction and the thing which is moving can be grasped with the feeling of a hand or a finger by being able to grasp point information, such as geographic information and a foot-walk level difference, by the sensor of the point of a cane, and carrying out the image processing of the image from at least one image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, a hearing impairment person, etc.

[0062] He is trying for the HYUMANNABI cane of invention corresponding to claim 23 to, change the oscillation frequency or the amplitude of an oscillating means on the other hand according to the output signal from a sensor or an image-processing means in the HYUMANNABI cane of invention corresponding to any 1 term of above-mentioned claim 20 thru/or claim 22.

[0063] Therefore, in the HYUMANNABI cane of invention corresponding to claim 23, according to the output signal from a sensor or an image-processing means, the oscillating means attached in the part of a shank is vibrated, and it tells human being's hand or finger. In this case, according to the output signal from a sensor or an image-processing means, by changing the oscillation frequency and the amplitude of an oscillating means, the contents, such as magnitude of an obstruction, and a class, distance, geographic information, can be distinguished, and advanced walk exchange is attained to elderly people, a dysopsia person, a hearing impairment person, etc.

[0064] Moreover, the HYUMANNABI cane of invention corresponding to claim 24 was attached near the point of a cane, and is equipped with the sensor which detects and outputs a physical signal, at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and a means to generate a sound or a sound signal according to the output signal from a sensor or an image-processing means. Therefore, in the HYUMANNABI cane of invention corresponding to claim 24, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. And the output signal from the point sensor of the cane concerned or the output signal from an image-processing means is changed into voice (or sound), and geographic information, point information, and information, such as the magnitude and the class of obstruction, and distance, are told to human being. That is, an obstruction and the thing which is moving can be grasped with voice (or sound) by being able to grasp point information, such as geographic information and a foot-walk level difference, with voice (or sound), and carrying out the image processing of the image of at least one image pick-up means by the sensor of the point of a cane. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0065] Furthermore, the HYUMANNABI cane of invention corresponding to claim 25 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, A means to generate a sound or a sound signal according to the output signal from a sensor, It has the shank which has at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and two or more oscillating means to vibrate according to the output signal from an image-processing means. Therefore, in the HYUMANNABI cane of invention corresponding to claim 25, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned, a sensor reads point information, such as geographic information and a level difference of a foot walk, changes this into voice (or sound), and tells human being. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. And according to the output signal from the image-processing means concerned, two or more oscillating means attached in the part of a shank are vibrated, and it tells human being's hand or finger. In this case, two or more oscillating means are attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and can grasp magnitude, a class, distance of an obstruction, etc. in a detail further through the feeling of a hand or a finger by choosing the oscillating means vibrated according to the informational contents. That is, an obstruction and the thing which is moving can be quickly grasped with the feeling of a hand or a finger by being able to grasp point information, such as geographic information and a foot-walk level difference, with voice (or sound) by the sensor of the point of a cane, and carrying out the image processing of the image of at least one image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0066] On the other hand, the HYUMANNABI cane of invention corresponding to claim 26 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The shank which has two or more oscillating means to vibrate according to the output signal from a sensor, It has at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and a means to generate a sound or a sound signal according to the output signal from an image-processing means. Therefore, in the HYUMANNABI cane of invention corresponding to claim 26, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. And according to the output signal from the sensor concerned, two or more oscillating means attached in the part of a shank are vibrated, and it tells human being's hand or finger. In this case, two or more oscillating means are attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and can grasp the contents of geographic information or point information through the feeling of a hand or a finger by choosing the oscillating means vibrated according to the informational contents. Moreover, the image 1 individual installation and ahead of a pedestrian is detected into the shank of a cane, or the part of a rod at least, the image processing of the small image pick-up means, such as a CCD camera, is carried out to it using the output signal from the image pick-up means concerned, this is changed into a sound (or sound), and it tells human being. That is, an obstruction etc. can be recognized to voice or a sound by being able to recognize point information, such as geographic information and a foot-walk level difference, with the feeling of a hand or a finger by the sensor of the point of a cane, and carrying out the image processing of the image of at least one image pick-up means. This becomes possible to elderly people, a dysopsia person, etc. to offer much more advanced walk exchange.

[0067] Moreover, the HYUMANNABI cane of invention corresponding to claim 27 was attached near the point of a cane, and is equipped with the shank which has two or more oscillating means vibrate according to the output signal from the sensor which detects and outputs a physical signal, at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and a sensor or an image-processing means. Therefore, in the HYUMANNABI cane of invention corresponding to claim 27, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. And according to the output signal from the sensor concerned or an image-processing means, two or more oscillating means attached in the part of a shank are vibrated, and it tells human being's hand or finger. In this case, two or more oscillating means are attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and can grasp contents, an obstruction, etc. of geographic information or point information through the feeling of a hand or a finger by choosing the oscillating means vibrated according to the informational contents. That is, an obstruction etc. can be recognized by being able to recognize point information, such as geographic information and a foot-walk level difference, by the sensor of the point of a cane, and carrying out the image processing of the image of at least one image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0068] Furthermore, he is trying for the HYUMANNABI cane of invention corresponding to claim 28 to change two or more oscillation frequency or amplitudes of an oscillating means according to the output signal from a sensor or an image-processing means in the HYUMANNABI cane of invention corresponding to any 1 term of above-mentioned claim 25 thru/or claim 27.

[0069] Therefore, in the HYUMANNABI cane of invention corresponding to claim 28, according to the output signal from a sensor or an image-processing means, two or more oscillating means attached in the part of a shank are vibrated, and it tells human being's hand or finger. In this case, according to the output signal from a sensor or an image-processing means, by changing two or more oscillation frequency and amplitude of each of an oscillating means, the contents, such as magnitude of an obstruction, and a class, distance, geographic information, can be further identified in a detail, and advanced walk exchange is attained to elderly people, a dysopsia person, a hearing impairment person, etc.

[0070] On the other hand, the HYUMANNABI cane of invention corresponding to claim 29 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, A means to generate a sound or a sound signal according to the output signal from a sensor, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from an image pick-up means, It has the shank which has a means to change a concavo-convex pattern according to the output signal from an image-processing means, and to transmit to a finger or a hand as Braille points or stippling.

[0071] Therefore, in the HYUMANNABI cane of invention corresponding to claim 29, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned, a sensor reads point information, such as geographic information and a level difference of a foot walk, changes this into voice (or sound), and tells human being. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. In this case, although an image processing can also be carried out using the information from one image pick-up means, the magnitude of an obstruction, the distance to an obstruction, the passing speed of an obstruction, etc. can recognize more correctly by carrying out an image processing using the information from two or more image pick-up means. Furthermore, according to the output signal from the image-processing means concerned, the concavo-convex pattern attached in the part of the shank of a cane is changed, and it tells human being's hand or finger as Braille points or stippling. And according to the informational contents, the class of obstruction, magnitude, distance, etc. are discriminable by changing a concavo-convex pattern. That is, an obstruction and the thing which is moving can be quickly grasped with the feeling of a hand or a finger by being able to grasp point information, such as geographic information and a foot-walk level difference, with voice (or sound) by the sensor of the point of a cane, and carrying out the image processing of the image of at least one image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0072] Moreover, the HYUMANNABI cane of invention corresponding to claim 30 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, The shank which has a means to change a concavo-convex pattern according to the output signal from a sensor, and to transmit to a finger or a hand as Braille points or stippling, It has at least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, and a means to generate a sound or a sound signal according to the output signal from an image-processing means.

[0073] Therefore, in the HYUMANNABI cane of invention corresponding to claim 30, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. And according to the output signal from the sensor concerned, the concavo-convex pattern attached in the part of the shank of a cane is changed, and it tells human being's hand or finger as Braille points or stippling. In this case, according to the informational contents, point information, such as geographic information and a level difference of a foot walk, can be judged by changing a concavo-convex pattern. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, an image processing is carried out to it using the output signal from the image pick-up means concerned, this is changed into voice (or sound), and it tells human being. In this case, although an image processing can also be carried out using the information from one image pick-up means, the magnitude of an obstruction, the distance to an obstruction, the passing speed of an obstruction, etc. can be recognized much more correctly by carrying out an image processing using the information from two or more image pick-up means. That is, an obstruction and the thing which is moving can be grasped with voice (or sound) by being able to grasp point information, such as geographic information and a foot-walk level difference, through the feeling of a hand or a finger by the sensor of the point of a cane, and carrying out the image processing of the image of at least one image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0074] Furthermore, the HYUMANNABI cane of invention corresponding to claim 31 The sensor which is attached near the point of a cane, and detects and outputs a physical signal, At least one image pick-up means attached in the shank or the part of a rod, and the image-processing means which output by performing an image processing using the output signal from an image pick-up means, It has a means to change a concavo-convex pattern according to the output signal from a sensor or an image-processing means, and to transmit to a finger or a hand as Braille points or stippling. Therefore, in the HYUMANNABI cane of invention corresponding to claim 31, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. In this case, although an image processing can also be carried out using the information from one image pick-up means, the magnitude of an obstruction, the distance to an obstruction, the passing speed of an obstruction, etc. can be recognized much more correctly by carrying out an image processing using the information from two or more image pick-up means. Moreover, according to the output signal from a sensor or an image-processing means, the concavo-convex pattern attached in the part of the shank of a cane is changed, and it tells human being's hand or finger as Braille points or stippling. In this case, according to the informational contents, the class of point information, such as geographic information and a level difference of a foot walk, and obstruction, magnitude, distance, etc. are discriminable by changing a concavo-convex pattern. That is, an obstruction and the thing which is moving can be quickly grasped [by the sensor of the point of a cane] for point information, such as geographic information and a foot-walk level difference, through the feeling of a hand or a finger again as a concavo-convex pattern of the part of the shank of a cane by the image processing signal of the image of an image pick-up means. Thereby, much more advanced walk exchange is attained to elderly people, a dysopsia person, etc.

[0075] The HYUMANNABI system of invention corresponding to claim 32 further again The sensor which is attached near the point of a cane, and detects and outputs a physical signal, At least one image pick-up means attached in the shank or the part of a rod, the image-processing means which output by performing an image processing using the output signal from an image pick-up means, And it has the cane which has a transmitting means to transmit the output signal from a sensor and an image-processing means on radio, a receiving means to receive and output the radio signal from the transmitting means of a cane, and a means to generate a sound or a sound signal according to the output signal from a receiving means. Therefore, in the HYUMANNABI system of invention corresponding to claim 32, a sensor reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag installed in the road, for example, the magnetic nail, etc., and bringing close the point of the cane which the pedestrian has in a wireless tag, a magnetic nail, etc. concerned. Moreover, at least one small image pick-up means, such as a CCD camera, is attached in the shank of a cane, or the part of a rod, the image ahead of a pedestrian is detected into it, and an image processing is carried out to it using the output signal from the image pick-up means concerned. In this case, although an image processing can also be carried out using the information from one image pick-up means, the magnitude of an obstruction, the distance to an obstruction, the passing speed of an obstruction, etc. can recognize much more correctly by carrying out an image processing using the information from two or more image pick-up means. Moreover, a receiving means by which the pedestrian has delivery and this independently on radio with the transmitting means in which the output signal from a sensor or an image-processing means was built receives. And the received signal (information) is changed into voice (or sound), and it tells human being. That is, point information, such as geographic information and a foot-walk level difference, can be grasped with voice (or sound) by the sensor of the point of a cane, and an obstruction and the thing which is moving can be grasped with voice (or sound) with at least one image pick-up means. Moreover, lightweight-ization of a cane can be attained by separating a means to generate a receiving means and a sound, or a sound signal from a cane. Moreover, it also becomes possible to divert a cellular phone as a receiving means, and an economical walk support system can be offered. Furthermore, improvement in service or a function can be aimed at by combining the migration mold PC (personal computer) with a receiving means side. Thereby, advanced walk exchange can be offered to elderly people, a dysopsia person, etc.

[0076] He is trying to use the signal of either light, the MAG or an electric signal as a physical signal here in the HYUMANNABI cane of invention corresponding to any 1 term of above-mentioned claim 1 thru/or claim 4, claim 6 or claim 8, claim 10 or claim 13, claim 15 or claim 18, claim 20, or claim 31, as indicated to claim 33.

[0077] Moreover, he is trying to use the signal of either light, the MAG or an electric signal as a physical signal in the HYUMANNABI system of invention corresponding to any 1 term of above-mentioned claim 5, claim 9, claim 14, claim 19, and claim 32, as indicated, for example to claim 34.

[0078]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained to a detail with reference to a drawing.

[0079] (The gestalt of the 1st operation: Correspond to claim 1) Drawing 1 R> 1 is a conceptual diagram for explaining the gestalt of this operation.

[0080] In drawing 1 , the cane in which a pedestrian has 1 and a pedestrian 1 has 2, and 21 are attached in the shank of a cane 2, 3 is attached near the point of a cane 2, and the sensor which detects and outputs a physical signal, and 31 show the wireless tag, respectively.

[0081] Here, as a physical signal, it is desirable to use the signal of either light, the MAG or an electric signal.

[0082] Moreover, the wireless tag 31 is embedded on a foot walk, and disseminates the information about a level difference, an obstruction, etc. of geography guidance near or a foot walk.

[0083] In addition, although information dispatch from the wireless tag 31 may always be performed, power consumption can be cut down, if it detects that the pedestrian 1 approached and it is sent. Or the point of a cane 2 is sensed and you may make it send it.

[0084] Drawing 2 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation.

[0085] In drawing 2 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0086] Moreover, the part of the shank 21 of a cane 2 is equipped with the small loudspeaker 6 which generates a sound or a sound signal.

[0087] Drawing 2 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation.

[0088] In drawing 2 (b), the signal-processing machine with which 32 processes the signal which the sensor 3 received, the speech synthesizer from which 61 changes the signal from the signal-processing machine 32 into a sound or a sound signal, and 6 show the small loudspeaker (or year horn) which generates a sound or a sound signal, respectively.

[0089] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0090] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0091] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0092] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.

[0093] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a

footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a bus stop and 22] a fish dealer and 34 like the baker.
[0094] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.
[0095] A sensor 3 receives this digital radio signal, and decodes the contents of information with the signal-processing vessel 32 of drawing 2 (b).
[0096] Next, this is changed into a sound or voice and the contents of information are told to a pedestrian from a loudspeaker 6.
[0097] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a station turning at the next crossing on the left, and being 50m beyond", etc.
[0098] This becomes possible to support a walk to elderly people, a dysopsia person, etc.
[0099] (Modification 1) Drawing 3 is the schematic diagram showing the example of a configuration of the HYUMANNABI cane by the modification of the gestalt of this operation.
[0100] The gestalt of this operation shows as an example the case where the magnetic nail 33 is embedded on a foot walk.
[0101] The magnetic nail 33 can distinguish the contents of information by telling information as a magnetic signal and changing the difference between N pole and the south pole, or this arrangement.
[0102] This has the advantage of it being cheap and not needing power although it is difficult to tell much information like a wireless tag. A magnetometric sensor is used as a sensor 3 in this case.
[0103] If a sensor 3 is brought close to the magnetic nail 33, N pole or the south pole will be distinguished, signal processing of this will be carried out, and it will change into a sound.
[0104] For example, if the tip of a cane 2 approaches the magnetic nail 33, a sound sounds with "Py" from the loudspeaker 6 attached in the cane 2, and he can walk by walking this sound to reliance, without separating from a foot walk.
[0105] N pole becomes possible [also avoiding contact to other pedestrians] by distinguishing right-hand side and the south pole like left-hand side, and changing a sound.
[0106] Moreover, the above-mentioned wireless tag 31 is laid on the important points, such as a level difference and a crossing, and it becomes possible to acquire more detailed information.
[0107] (Modification 2) Drawing 4 is the schematic diagram showing the example of a configuration by the modification of the gestalt of this operation.
[0108] The gestalt of this operation shows the example of construction of the magnetic nail 33 and the wireless tag 31.
[0109] In drawing 4 , in 100, a foot walk and 200 show a driveway and 201 shows the automobile, respectively.
[0110] By walking along with the magnetic nail 33 of a foot walk, a pedestrian 1 can walk without separating from a foot walk, and can acquire more detailed information from the wireless tag 31 laid to this this side at main points, such as a crossing.
[0111] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting point information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade Since a sensor 3 can read point information, such as geographic information and a level difference of a foot walk, can change this into voice (or sound) and can tell a pedestrian 1, it becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.
[0112] (The gestalt of the 2nd operation: Correspond to claim 2) Drawing 5 R> 5 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0113] In drawing 5 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0114] Moreover, the part of the shank 21 of a cane 2 is equipped with one vibrator 7 which vibrates according to the output signal from a sensor 3.

[0115] Drawing 5 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0116] In drawing 5 (b), the oscillating pattern generator from which 71 changes the signal from said signal-processing machine 32 into vibration of vibrator 7, and 7 show the vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.
[0117] That is, he changes into vibration of vibrator 7 the signal which the sensor 3 received, and is trying to tell the contents of information through the feeling of a pedestrian's 1 hand, or a finger from vibrator 7.
[0118] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0119] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.
[0120] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.
[0121] A sensor 3 receives this digital signal on radio, and decodes the contents of information with the signal-processing vessel 32 of drawing 5 (b).
[0122] Next, this is changed into an oscillating pattern and the contents of information are told through a pedestrian's 1 hand or finger from vibrator 7.
[0123] Drawing 5 (c) is drawing showing an example of an oscillating pattern.
[0124] The pedestrian 1 learns what this oscillating pattern and this mean beforehand, and gets to know that the level difference, the crossing, etc. drew near.
[0125] In this case, although the contents of information decrease as compared with transfer with the voice mentioned above, there is an advantage of being quickly transmitted with the feeling of a pedestrian's 1 hand or a finger.
[0126] Moreover, it becomes possible [supporting a walk] also to a difficult hearing impairment person etc. to hear a sound. It is the the best for acquiring simple information, such as a magnetic nail, especially.
[0127] (Modification) Drawing 6 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the modification of the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0128] In drawing 6 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0129] Moreover, the part of the shank 21 of a cane 2 is equipped with the vibrator 7 of plurality (this example two) which vibrates according to the output signal from a sensor 3.
[0130] Drawing 6 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0131] In drawing 6 (b), the oscillating pattern generator from which 71 changes the signal from said signal-processing machine 32 into vibration of two or more vibrator 7a and 7b, and 7a and 7b show two or more vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.
[0132] That is, he changes into the oscillating pattern of Vibrator 7a and 7b the signal which the sensor 3 received, and is trying to tell the contents of information through the feeling of a pedestrian's 1 hand, or a finger.
[0133] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0134] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.
[0135] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.
[0136] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.
[0137] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a

bus stop and 22] a fish dealer and 34 like the baker.
[0138] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.
[0139] A sensor 3 receives this digital signal on radio, and decodes the contents of information with the signal-processing vessel 32 of drawing 6 (b).
[0140] Next, this is changed into an oscillating pattern and the contents of information are told through a pedestrian's hand or finger from two vibrator 7a and 7b.
[0141] For example, when vibrating only vibrator 7a, vibrating only right-hand side and vibrator 7b, vibrating left-hand side and each vibrator 7a and 7b to coincidence and vibrating the front and each vibrator 7a and 7b by turns, it tells back that there is an object, respectively.
[0142] In addition, by changing an oscillating pattern, it becomes possible to distinguish the more detailed contents of information, and it becomes possible to offer advanced walk exchange for elderly people, a dysopsia person, a hearing impairment person, etc.
[0143] Moreover, although a cane 2 is grasped single hand, vibrator 7 can also be prepared according to this digiti manus.
[0144] That is, it becomes possible by preparing vibrator 7 according to an index finger, the middle finger, the third finger, and a digitus minimus, and changing each oscillating pattern to grasp the information from the wireless tag 31 in a detail more.
[0145] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, point information, such as geographic information, a level difference of a foot walk, and an obstruction, is put into the wireless tag 31 installed in the road or the magnetic nail 33 grade. By bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade Since a sensor 3 reads point information, such as geographic information, a level difference of a foot walk, and an obstruction, vibrates at least one vibrator 7 attached in the part of the shank 21 of a cane 2 according to this and can tell a pedestrian's 1 hand or finger, It becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.
[0146] Moreover, it becomes possible by using two or more vibrator 7 to tell much more detailed information.
[0147] Furthermore, by being attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and choosing the vibrator vibrated according to the informational contents, two or more vibrator 7 can grasp point information, such as an obstruction, in a detail further through the feeling of a hand or a finger, and becomes possible [offering walk exchange of elderly people, a dysopsia person, a hearing impairment person etc.].
[0148] (The gestalt of the 3rd operation: Correspond to claim 3) He is trying for the HYUMANNABI cane by the gestalt of this operation to change the oscillation frequency or the amplitude of vibrator 7 in the HYUMANNABI cane by the gestalt of the 2nd operation mentioned above according to the output signal from said sensor 3.
[0149] According to the output signal of the signal-processing machine 32, by changing the oscillation frequency and the amplitude of at least one vibrator 7, the contents of information can be further distinguished now finely, and a pedestrian can grasp geography guidance etc. now in the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above.
[0150] (The gestalt of the 4th operation: Correspond to claim 4) Drawing 7 R> 7 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0151] In drawing 7 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0152] Moreover, the part of the shank 21 of a cane 2 is equipped with the concavo-convex panel 8 which changes into a concavo-convex pattern the signal which the sensor 3 received.
[0153] Drawing 7 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0154] In drawing 7 (b), the concavo-convex pattern generator from which 81 changes the signal from said

signal-processing machine 32 into a concavo-convex pattern, and 8 show the concavo-convex panel which displays the output signal from the concavo-convex pattern generator 81 as a concavo-convex pattern of Braille points or stippling, respectively.

[0155] That is, he changes into the concavo-convex pattern of the concavo-convex panel 8 the signal which the sensor 3 received, and is trying to tell the contents of information through the feeling of a pedestrian's 1 hand, or a finger from the concavo-convex panel 8.

[0156] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0157] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0158] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0159] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.

[0160] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a bus stop and 22] a fish dealer and 34 like the baker.

[0161] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.

[0162] A sensor 3 receives this digital signal on radio, and decodes the contents of information with the signal-processing vessel 32 of drawing 7 (b).

[0163] Next, this is changed into the concavo-convex pattern of the concavo-convex panel 8 with the concavo-convex pattern generator 81, and the contents of information are told through a pedestrian's 1 hand or finger from the concavo-convex panel 8.

[0164] Drawing 8 is broken by the schematic diagram showing the example of a configuration of the concavo-convex panel 8.

[0165] In drawing 8 , 801, 802, 803, and .... show the concavo-convex component.

[0166] By consisting of spring 801b, small electromagnet 801c, piece of iron 801d, and small projection piece 801a, and exciting small electromagnet 801c, the concavo-convex component 801 adsorbs piece of iron 801d, and lowers small projection piece 801a downward.

[0167] If excitation is cut, small projection piece 801a will be raised upwards according to the force of spring 801b.

[0168] The concavo-convex panel 8 arranges the small projection which can be taken up and down in for example, width 20 train and vertical 10 train, takes up and down each small projection according to the signal from the concavo-convex pattern generator 81, and displays the contents of information as Braille points or stippling.

[0169] In this case, if it uses in Braille-points mode, point information and geography guidance information, such as a level difference sent from the wireless tag 31, can be grasped as a Braille-points train.

[0170] Moreover, if it uses in stippling mode, neither a level difference nor a crossing can reach for saying, but those who cannot understand Braille points can also understand a post office, a fish dealer, etc.

[0171] This becomes possible to offer advanced walk exchange for elderly people, a dysopsia person, a hearing impairment person, etc.

[0172] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting the information on geographic information, the level difference of a foot walk, an obstruction, etc. into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 reads the information on geographic information, the level difference of a foot walk, an obstruction, etc., and the concavo-convex pattern of the concavo-convex panel 8 attached in the part of the shank 21 of a cane 2 is changed according to this. As Braille points or stippling Since it can tell a pedestrian's 1 hand or finger, point information, such as an obstruction, can be grasped through the feeling of a hand or a finger, and it becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.

[0173] (The gestalt of the 5th operation: Correspond to claim 5) Drawing 9 R> 9 is a conceptual diagram for explaining the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0174] In drawing 9 , the pocket receiver with which 10 receives the signal which the sensor 3 received, and 13 show the year horn which generates a sound or a sound signal, respectively.

[0175] Drawing 10 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0176] In drawing 10 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0177] Moreover, the part of the shank 21 of a cane 2 is equipped with the transmitter 9 which transmits the output signal from said sensor 3 on radio.

[0178] Drawing 10 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0179] In drawing 10 (b), the body of a receiver with which 10a receives the radio signal from a transmitter 9, the speech synthesizer from which 11 changes the signal from body of receiver 10a into a sound or a sound signal, and 12 show the small loudspeaker (or year horn) which generates a sound or a sound signal according to the output signal of a speech synthesizer 11 in the transmitter and the pocket receiver 10 with which 9 transmits the signal from said signal-processing machine 32 on radio, respectively.

[0180] Next, an operation of the HYUMANNABI system by the gestalt of this operation constituted as mentioned above is explained.

[0181] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0182] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0183] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.

[0184] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a bus stop and 22] a fish dealer and 34 like the baker.

[0185] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.

[0186] A sensor 3 receives this digital radio signal, and decodes the contents of information with the signal-processing vessel 32 of drawing 10 (b).

[0187] Next, this is transmitted as a radio signal with the transmitter 9 built in the cane 2.

[0188] This radio signal is received by receiver 10a, this is changed into a sound or voice through a speech synthesizer 11, and the contents of information are told to a pedestrian 1 from a loudspeaker 12.

[0189] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a station turning at the next crossing on the left, and being 50m beyond", etc.

[0190] This becomes possible to elderly people, a dysopsia person, etc. to support a walk.

[0191] As mentioned above, in the HYUMANNABI system of the gestalt of this operation, it becomes possible to attain lightweight-ization of a cane 2 by separating a means to generate the pocket receiver 10 and a sound, or a sound signal from a cane 2.

[0192] Moreover, it becomes possible to divert a cellular phone etc. as a pocket receiver 10, and it becomes possible to offer an economical walk support system.

[0193] Furthermore, it becomes possible by combining the migration mold PC (personal computer) with the pocket receiver 10 side to aim at improvement in the further function.

[0194] Thereby, while advanced walk exchange can be offered to elderly people, a dysopsia person, etc., it becomes possible to use a telecommunications service.

[0195] (The gestalt of the 6th operation: Correspond to claim 6) Fig. 1111 is a conceptual diagram for explaining the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0196] In drawing 11 , 4 is attached in the shank 21 of a cane 2, or the part of a rod, and shows the obstruction sensor which detects an obstruction 41 and outputs a signal.
[0197] Drawing 12 (a) and (b) are the front views and side elevations showing the concrete example of structure of the HYUMANNABI cane by the gestalt of this operation, they give the same sign to the same element as the gestalt of said operation, omit this explanation, and describe only a part different here.
[0198] In drawing 12 , 7 shows one vibrator which vibrates according to the output signal from the obstruction sensor 4.
[0199] Here, the obstruction sensor 4 is attached in the central part of the shank 21 of a cane 2, and when a pedestrian 1 turns the obstruction sensor 4 concerned to the front or a longitudinal direction, objective magnitude, distance, etc. acting as a failure can be known to a walk.
[0200] Vibrator 7 is attached in the part of the shank 21 of a cane 2, vibrates by the decided pattern which exists according to magnitude, distance, passing speed of an obstruction 41, etc., and tells a pedestrian 1 information through the feeling of a hand or a finger.
[0201] Drawing 13 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, omits the explanation which attaches the same sign to the same element as the gestalt of said operation, and states only a part different here to it.
[0202] In drawing 13 (a), the shank 21 of a cane 2 or the part of a rod is equipped with one vibrator 7 which vibrates according to the output signal from the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and this obstruction sensor 4.
[0203] Drawing 13 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0204] In drawing 13 (b), the signal-processing machine with which 42 processes the output signal from the obstruction sensor 4, the oscillating pattern generator from which 71 changes the signal from the signal-processing machine 42 into vibration of vibrator 7, and 7 show the vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.
[0205] That is, he changes into an oscillating pattern the signal which the obstruction sensor 4 received, and is trying to tell obstruction information through the feeling of a pedestrian's 1 hand, or a finger from vibrator 7.
[0206] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0207] The obstruction detection sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 41 ahead of a pedestrian 1 is detected.
[0208] The obstruction sensor 4 detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.
[0209] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.
[0210] Signal processing of the output signal of the obstruction sensor 4 is carried out through the signal-processing machine 42, vibrator 7 is vibrated by the pattern decided by the oscillating pattern generator 71 according to magnitude, distance, passing speed of an obstruction 41, etc., and information is told through the feeling of a pedestrian's 1 hand, or a finger.
[0211] For example, a large thing is long in vibration periods, a small thing is short in vibration periods, and patterns, such as vibration with the strong thing of vibration with a far weak thing and near, are prepared.
[0212] Thereby, the obstruction 41 during a walk is quickly transmitted through the feeling of a pedestrian's 1 hand, or a finger, and becomes possible [supporting a walk to elderly people, a dysopsia person, a hearing impairment person, etc.].
[0213] (Modification 1) Drawing 14 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the modification of the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0214] In drawing 14 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the vibrator 7 of plurality (this example two) which vibrates according to the output signal from the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and this obstruction sensor 4.

[0215] Drawing 14 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0216] In drawing 14 (b), the oscillating pattern generator from which 71 changes the signal from said signal-processing machine 42 into vibration of two or more vibrator 7a and 7b, and 7a and 7b show two or more vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.
[0217] That is, he changes into the oscillating pattern of two or more vibrator 7a and 7b the signal detected by the obstruction sensor 4, and is trying to tell the contents of information through the feeling of a pedestrian's 1 hand, or a finger.
[0218] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0219] An obstruction 41 is detected by the obstruction sensor 4, and the contents of information are decoded with the signal-processing vessel 42.
[0220] Next, this is changed into an oscillating pattern and the contents of information are told through a pedestrian's 1 hand or finger from two vibrator 7a and 7b.
[0221] For example, when vibrating only vibrator 7a, vibrating only right-hand side and vibrator 7b, vibrating left-hand side and each vibrator 7a and 7b to coincidence and vibrating the front and each vibrator 7a and 7b by turns, it tells back that there is an object, respectively.
[0222] In addition, by changing an oscillating pattern, it becomes possible to distinguish the more detailed contents of information, and it becomes possible to offer advanced walk exchange for elderly people, a dysopsia person, a hearing impairment person, etc.
[0223] (Modification 2) Drawing 15 is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the modification of the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0224] In addition, drawing 15 (a) shows the whole cane and drawing 15 (b) shows the part of the shank of a cane, respectively.
[0225] In drawing 15 , the vibrator of plurality (this example four) which vibrates according to the output signal from said obstruction sensor 4 is shown 7a, 7b, 7c, and 7d.
[0226] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0227] Two or more vibrator 7a, 7b, 7c, and 7d is attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and the information on obstruction 41 grade can be grasped through the feeling of a pedestrian's 1 hand, or a finger by choosing the vibrator vibrated according to the informational contents.
[0228] Moreover, magnitude, a class, distance of an obstruction 41, etc. can be judged more in a detail through the feeling of a pedestrian's 1 hand, or a finger by changing two or more Vibrator [7a 7b 7c, and 7d] oscillation frequency and amplitude of each according to the contents of the information sent from the obstruction sensor 4.
[0229] This becomes possible to elderly people, a dysopsia person, a hearing impairment person, etc. to offer advanced walk exchange.
[0230] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, the obstruction sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod. Since the magnitude of the obstruction 41 ahead of a pedestrian 1, a class, distance, etc. are detected, at least one vibrator 7 attached in the part of the shank 21 of a cane 2 is vibrated according to this and it can tell a pedestrian's 1 hand or finger, It becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.
[0231] Moreover, it becomes possible by using two or more vibrator 7 to tell much more detailed information.
[0232] Furthermore, by being attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and choosing the vibrator vibrated according to the informational contents, two or more vibrator 7 can grasp point information, such as an obstruction, in a detail further through the feeling of a hand or a finger, and becomes possible [offering walk exchange of elderly people, a

dysopsia person, a hearing impairment person etc.].

[0233] It becomes possible to judge magnitude, a class, distance of an obstruction 41, etc. in a detail further through the feeling of a pedestrian's 1 hand, or a finger by changing the oscillation frequency and the amplitude of at least one vibrator 7 further again according to the contents of the information sent from the obstruction sensor 4.

[0234] Thereby, advanced walk exchange can be offered to elderly people, a dysopsia person, a hearing impairment person, etc.

[0235] (The gestalt of the 7th operation: Correspond to claim 7) Fig. 1616 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0236] In drawing 16 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and the concavo-convex panel 8 which changes into a concavo-convex pattern the signal which the obstruction sensor 4 received.

[0237] Drawing 16 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0238] In drawing 16 (b), the signal-processing machine with which 42 processes the output signal from the obstruction sensor 4, the concavo-convex pattern generator from which 81 changes the signal from the signal-processing machine 42 into a concavo-convex pattern, and 8 show the concavo-convex panel which displays the output signal from the concavo-convex pattern generator 81 as a concavo-convex pattern of Braille points or stippling, respectively.

[0239] That is, he changes into the concavo-convex pattern of the concavo-convex panel 8 the signal which the obstruction sensor 4 received, and is trying to tell obstruction information through the feeling of a pedestrian's 1 hand, or a finger.

[0240] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0241] The obstruction sensor 4 is attached in the part of the shank 21 (or rod) of a cane 2, and when a pedestrian 1 turns the obstruction sensor 4 to the front or a longitudinal direction, objective magnitude, distance, etc. acting as a failure can be known to a walk.

[0242] For example, the obstruction sensor 4 using a supersonic wave etc. detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.

[0243] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.

[0244] Moreover, the concavo-convex panel 81 is attached in the part of the shank 21 of a cane 2, and tells a pedestrian 1 information through the feeling of a pedestrian's 1 hand, or a finger as Braille points or stippling according to magnitude, distance, passing speed of an obstruction 41, etc.

[0245] The signal detected by the obstruction sensor 4 is inputted into the signal-processing machine 42, and the contents of information, such as magnitude of an obstruction 41, distance to an obstruction 41, or a rate of migration, are decoded.

[0246] Next, this is changed into the concavo-convex pattern of the concavo-convex panel 8 with the concavo-convex pattern generator 81, and the contents of information are told through a pedestrian's 1 hand or finger from the concavo-convex panel 8.

[0247] The concavo-convex panel 8 arranges the small projection which can be taken up and down in for example, width 20 train and vertical 10 train, takes up and down each small projection according to the signal from the concavo-convex pattern generator 81, and displays the contents of information as Braille points or stippling.

[0248] In this case, if it uses in Braille-points mode, the information which the obstruction sensor 4 detected can be grasped as a Braille-points train.

[0249] Moreover, if it uses in stippling mode, you can understand the form of the profile of an obstruction 41 etc. also by those who cannot understand Braille points.

[0250] This becomes possible to offer advanced walk exchange for elderly people, a dysopsia person, a hearing impairment person, etc.

[0251] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, the obstruction sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod. Although the magnitude of the obstruction ahead of a pedestrian 1, a class, distance, etc. are detected, the concavo-convex pattern of the concavo-convex panel 8 attached in the part of the shank 21 of a cane 2 is changed according to this and it tells a pedestrian's 1 hand or finger as Braille points or stippling, since it can do, Point information, such as an obstruction, can be grasped through the feeling of a hand or a finger, and it becomes possible to offer walk exchange of elderly people, a dysopsia person, a hearing impairment person, etc. so that he can walk also along the first path easily in comfort.

[0252] (The gestalt of the 8th operation: Correspond to claim 8) Fig. 1717 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0253] In drawing 17 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and the small loudspeaker 6 which generates a sound or a sound signal.

[0254] Drawing 17 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0255] In drawing 17 (b), 42 shows the signal-processing machine which processes the output signal from the obstruction sensor 4.

[0256] That is, he changes into a sound or voice the signal which the obstruction sensor 4 received, and is trying to tell a pedestrian 1 the contents of information.

[0257] Here, the obstruction sensor 4 is attached in the part of the shank 21 (or rod) of a cane 2, and when a pedestrian 1 turns the obstruction sensor 4 concerned to the front or a longitudinal direction, objective magnitude, distance, etc. acting as a failure can be known to a walk.

[0258] For example, the obstruction sensor 4 using a supersonic wave etc. detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to a front obstruction and come to it on the contrary.

[0259] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction.

[0260] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0261] The signal detected by the obstruction sensor 4 is inputted into the signal-processing machine 42, and the contents of information, such as magnitude of an obstruction 41, distance to an obstruction 41, or a rate of migration, are decoded.

[0262] Next, with a speech synthesizer 61, this is changed into a sound or voice and is told to a pedestrian 1.

[0263] For example, the information on "they are those with an obstruction to the front", "an automobile approaching [be / it]", there "there being people", there "there being a level difference", etc. gets across to a pedestrian 1, and, thereby, walk exchange can be offered to elderly people, a dysopsia person, etc.

[0264] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, the obstruction sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod. The magnitude of the obstruction 41 ahead of a pedestrian 1, a class, distance, etc. are detected, and in order to change this into voice (or sound) and to tell a pedestrian 1 according to this, it becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.

[0265] (The gestalt of the 9th operation: Correspond to claim 9) Fig. 1818 is a conceptual diagram for explaining the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0266] In drawing 18 , the pocket receiver with which 10 receives the signal which the obstruction sensor 4 received, and 13 show the year horn which generates a sound or a sound signal, respectively.

[0267] Drawing 19 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0268] In drawing 19 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and the transmitter 9 which transmits the output signal from this obstruction sensor 4 on radio.
[0269] Drawing 19 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0270] In drawing 19 (b), the body of a receiver with which 10a receives the radio signal from a transmitter 9, the speech synthesizer from which 11 changes the signal from body of receiver 10a into a sound or a sound signal, and 12 show the small loudspeaker (or year horn) which generates a sound or a sound signal according to the output signal of a speech synthesizer 11 in the transmitter and the pocket receiver 10 with which 9 transmits the signal from said signal-processing machine 42 on radio, respectively.
[0271] Here, the obstruction sensor 4 is attached in the part of the shank 21 (or rod) of a cane 2, and when a pedestrian turns the obstruction sensor 4 concerned to the front or a longitudinal direction, objective magnitude, distance, etc. acting as a failure can be known to a walk.
[0272] For example, the obstruction sensor 4 using a supersonic wave etc. detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.
[0273] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.
[0274] Next, an operation of the HYUMANNABI system by the gestalt of this operation constituted as mentioned above is explained.
[0275] The signal detected by the obstruction sensor 4 is inputted into the signal-processing machine 42, and the contents of information, such as magnitude of an obstruction 41, distance to an obstruction 41, or a rate of migration, are decoded.
[0276] Next, this is transmitted on radio with a transmitter 9, and the pocket receiver 10 which the pedestrian 1 is carrying receives.
[0277] The pocket receiver 10 is equipped with body of receiver 10a, the speech synthesizer 11, and the loudspeaker (or year horn) terminal, and the signal received by receiver 10a is changed into a sound or voice with a speech synthesizer 61, and is told to a pedestrian 1.
[0278] For example, the information on "they are those with an obstruction to the front", "an automobile approaching [be / it]", there "there being people", there "there being a level difference", etc. gets across to a pedestrian 1, and, thereby, walk exchange can be offered to elderly people, a dysopsia person, etc.
[0279] As mentioned above, in the HYUMANNABI system of the gestalt of this operation, it becomes possible to attain lightweight-ization of a cane 2 by separating a means to generate the pocket receiver 10 and a sound, or a sound signal from a cane 2.
[0280] Moreover, it becomes possible to divert a cellular phone etc. as a pocket receiver 10, and it becomes possible to offer an economical walk support system.
[0281] Furthermore, it becomes possible by combining the migration mold PC (personal computer) with the pocket receiver 10 side to aim at improvement in the further function.
[0282] Thereby, while advanced walk exchange can be offered to elderly people, a dysopsia person, etc., it becomes possible to use a telecommunications service.
[0283] (The gestalt of the 10th operation: Correspond to claims 10 and 11) Drawing 20 is a conceptual diagram for explaining the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0284] In drawing 20 , the small cameras (CCD camera etc.) whose 5 is an image pick-up means, and 51 show the obstruction, respectively.
[0285] A camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and when a pedestrian 1 turns the camera 5 concerned to the front or a longitudinal direction, the image of body 51 grade acting as a failure is captured to a walk.
[0286] Drawing 21 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0287] In drawing 21 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5

which is an image pick-up means, and one vibrator 7 which vibrates according to the output signal from this small camera 5.

[0288] Drawing 21 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0289] In drawing 21 (b), the image-processing machine which 52 performs an image processing using the output signal from the small camera 5, and is outputted, the oscillating pattern generator from which 71 changes the signal from the image-processing machine 52 into vibration of vibrator 7, and 7 show the vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.

[0290] That is, the image processing of the picture signal which the small camera 5 caught is carried out, and he changes into the oscillating pattern of vibrator 7 further, and is trying to tell obstruction information etc. through the feeling of a pedestrian's 1 hand, or a finger from vibrator 7.

[0291] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0292] The small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.

[0293] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.

[0294] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.

[0295] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.

[0296] The oscillating pattern generator 71 vibrates vibrator 7 by the oscillating pattern decided beforehand according to the output signal of the image-processing machine 52, and tells information through the feeling of a pedestrian's 1 hand, or a finger.

[0297] For example, a large thing is long in vibration periods, a small thing is short in vibration periods, and patterns, such as vibration with the strong thing of vibration with a far weak thing and near, are prepared.

[0298] Thereby, the obstruction 51 during a walk is quickly transmitted through the feeling of a pedestrian's 1 hand, or a finger, and walk exchange can be offered to elderly people, a dysopsia person, a hearing impairment person, etc.

[0299] (Modification) Drawing 22 (a) and (b) are the front views and side elevations showing the concrete example of structure of the HYUMANNABI cane by the gestalt of this operation, they give the same sign to the same element as the gestalt of said operation, omit this explanation, and describe only a part different here.

[0300] In drawing 22 , 7a and 7b show the vibrator which vibrates according to the output signal from the small cameras 5a and 5b of plurality (this example two pieces).

[0301] Drawing 23 is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, omits the explanation which attaches the same sign to the same element as the gestalt of said operation, and states only a part different here to it.

[0302] In drawing 23 , the image-processing machine which 52 carries out the image processing of the output signal from the small cameras 5a and 5b, and is outputted, the oscillating pattern generator from which 71 changes the signal from the image-processing machine 52 into vibration of vibrator 7, and 7a and 7b show the vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.

[0303] That is, he changes into an oscillating pattern the signal which the small cameras 5a and 5b incorporated, and is trying to tell obstruction information through the feeling of a pedestrian's 1 hand, or a finger from vibrator 7.

[0304] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0305] More detailed information can be told by using two or more vibrator 7a and 7b.

[0306] Two or more vibrator 7a and 7b is attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and the information on obstruction 51 grade can be grasped through the feeling of a pedestrian's 1 hand, or a finger by choosing the vibrator vibrated according to the informational contents.

[0307] Moreover, magnitude, a class, distance of an obstruction 51, etc. can be judged more in a detail through the feeling of a pedestrian's 1 hand, or a finger by changing two or more oscillation frequency and amplitude of each of Vibrator 7a and 7b according to the contents of the information sent from the small cameras 5a and 5b.

[0308] When this uses two or more small cameras 5a and 5b for the pan which can offer advanced walk exchange to elderly people, a dysopsia person, a hearing impairment person, etc., it can carry out a three-dimensional image processing, and specification of an object not only becomes easy, but can perform the distance grasp with an object correctly.

[0309] Thereby, exact information is told by the pedestrian 1 and it becomes possible to offer advanced walk exchange.

[0310] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation At least one small camera 5, such as a CCD camera, is attached in the shank 21 of a cane 2, or the part of a rod. In order to detect and carry out the image processing of the image of the pedestrian 1 front, to vibrate at least one vibrator 7 attached in the part of a shank 21 according to this and to tell a pedestrian's 1 hand or finger, It becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.

[0311] Moreover, it becomes possible by using two or more vibrator 7 to tell much more detailed information.

[0312] Furthermore, by being attached respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and choosing the vibrator vibrated according to the informational contents, two or more vibrator 7 can grasp further magnitude, a class, distance of obstruction 51 grade, etc. in a detail through the feeling of a pedestrian's 1 hand, or a finger, and can offer walk exchange of elderly people, a dysopsia person, a hearing impairment person, etc.

[0313] By changing the oscillation frequency and the amplitude of at least one vibrator 7 further again according to the contents of the information sent from the image-processing machine 52, magnitude, a class, distance of an obstruction 51, etc. can be further judged in a detail through the feeling of a pedestrian's 1 hand, or a finger, and it become possible to elderly people, a dysopsia person, a hearing impairment person, etc. to offer advanced walk exchange.

[0314] (The gestalt of the 11th operation: Correspond to claim 12) Drawing 24 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0315] In drawing 24 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, and the concavo-convex panel 8 which changes into a concavo-convex pattern the signal which this small camera 5 incorporated.

[0316] Drawing 24 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0317] In drawing 24 (b), the concavo-convex pattern generator from which 81 changes the signal from said image-processing machine 52 into a concavo-convex pattern, and 8 show the concavo-convex panel which displays the output signal from the concavo-convex pattern generator 81 as a concavo-convex pattern of Braille points or stippling, respectively.

[0318] That is, the image processing of the signal which the small camera 5 incorporated is carried out, and he changes into a concavo-convex pattern further, and is trying to tell obstruction information etc. through the feeling of a pedestrian's 1 hand, or a finger from the concavo-convex panel 8.

[0319] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0320] The small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.

[0321] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.

[0322] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.

[0323] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.

[0324] According to the output signal of the image-processing machine 52, the concavo-convex pattern generator 81 is changed into the concavo-convex pattern of the concavo-convex panel 8, and tells the contents of information through a pedestrian's 1 hand or finger from the concavo-convex panel 8.

[0325] The concavo-convex panel 8 arranges the small projection which can be taken up and down in for example, width 20 train and vertical 10 train, takes up and down each small projection according to the signal from the concavo-convex pattern generator 81, and displays the contents of information as Braille points or stippling.

[0326] In this case, if it uses in Braille-points mode, the information which the small camera 5 detected can be grasped as a Braille-points train.

[0327] Moreover, if it uses in stippling mode, you can understand the form of the profile of obstruction 51 grade also by those who cannot understand Braille points.

[0328] This becomes possible to offer advanced walk exchange for elderly people, a dysopsia person, a hearing impairment person, etc.

[0329] (Modification) Drawing 25 is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, omits the explanation which attaches the same sign to the same element as the gestalt of said operation, and states only a part different here to it.

[0330] In drawing 25 , the image-processing machine which 52 carries out the image processing of the output signal from two or more small cameras 5a and 5b, and is outputted, the concavo-convex pattern generator from which 81 changes the signal from the image-processing machine 52 into a concavo-convex pattern, and 8 show the concavo-convex panel which displays the output signal from the concavo-convex pattern generator 81 as a concavo-convex pattern of Braille points or stippling, respectively.

[0331] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0332] By using two or more small cameras 5a and 5b, it can carry out a three-dimensional image processing, and specification of an object not only becomes easy, but can perform the distance grasp with an object correctly.

[0333] Thereby, exact information is told by the pedestrian 1 and it becomes possible to offer advanced walk exchange.

[0334] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation At least one small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod. Since the image processing of the image of the pedestrian 1 front can be detected and carried out, the concavo-convex pattern of the concavo-convex panel 8 attached in the part of the shank 21 of a cane 2 can be changed according to this and it can tell a pedestrian's 1 hand or finger as Braille points or stippling, The point information on obstruction 51 grade can be grasped through the feeling of a hand or a finger, and it becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.

[0335] Moreover, it becomes possible by carrying out an image processing using the information from two or more small cameras 5 to recognize further the magnitude of an obstruction 51, the distance to an obstruction 51, the passing speed of an obstruction 51, etc. to accuracy.

[0336] Furthermore, by changing the concavo-convex pattern of the concavo-convex panel 8 according to the contents of the information from the image-processing machine 52, the class of obstruction 51, magnitude, distance, etc. can be quickly judged through the feeling of a hand or a finger, and it becomes possible to offer walk exchange to elderly people, a dysopsia person, a hearing impairment person, etc.

[0337] (The gestalt of the 12th operation: Correspond to claim 13) Drawing 26 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0338] In drawing 26 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, and the loudspeaker 6 which generates a sound or a sound signal according to the signal which this small camera 5 incorporated.

[0339] Drawing 26 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0340] In drawing 26 (b), the image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, the speech synthesizer from which 61 changes the output signal from the image-processing machine 52 into a sound or voice, and 6 show the loudspeaker which generates a sound or a sound signal according to the output signal of a speech synthesizer 61, respectively.
[0341] That is, the image processing of the video signal incorporated with the small camera 5 is carried out, and he compounds a sound or voice according to this output signal, and is trying to tell a pedestrian 1 the information on front obstruction 51 grade from a loudspeaker 6.
[0342] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0343] The small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0344] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.
[0345] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.
[0346] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0347] According to the output signal from the image-processing machine 52, a speech synthesizer 61 compounds voice and tells a pedestrian 1 the contents of information from a loudspeaker 6.
[0348] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a bicycle approaching from the method of the forward right", etc.
[0349] This becomes possible to offer walk exchange to elderly people, a dysopsia person, etc.
[0350] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation Since at least one small camera 5 can be attached in the shank 21 of a cane 2, or the part of a rod, the image processing of the image of the pedestrian 1 front can be detected and carried out to it, this can be changed into voice (or sound) according to this and it can tell a pedestrian 1, The point information on obstruction 51 grade can be grasped through the feeling of a hand or a finger, and it becomes possible to offer walk exchange of elderly people, a dysopsia person, etc. so that he can walk also along the first path easily in comfort.
[0351] Moreover, it becomes possible by carrying out an image processing using the information from two or more small cameras 5 to recognize further the magnitude of an obstruction 51, the distance to an obstruction 51, the passing speed of an obstruction 51, etc. to accuracy.
[0352] Furthermore, according to the output signal from the image-processing machine 52, by changing this into voice (or sound), the class of obstruction 51, magnitude, the distance to an obstruction 51, etc. can be quickly judged through the feeling of a hand or a finger, and it becomes possible to offer walk exchange to elderly people, a dysopsia person, a hearing impairment person, etc.
[0353] (The gestalt of the 13th operation: Correspond to claim 14) Drawing 27 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0354] In drawing 27 (a), the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, and the transmitter 9 which transmits the output signal from this small camera 5 on radio.
[0355] Drawing 27 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0356] In drawing 27 (b), the body of a receiver with which 10a receives the radio signal from a transmitter 9, the speech synthesizer from which 11 changes the signal from body of receiver 10a into a sound or a sound signal, and 12 show the small loudspeaker (or year horn) which generates a sound or a sound signal

according to the output signal of a speech synthesizer 11 in the transmitter and the pocket receiver 10 with which 9 transmits the signal from said image-processing machine 52 on radio, respectively.
[0357] That is, the image processing of the video signal incorporated with the small camera 5 is carried out, an image processing signal is transmitted from the transmitter 9 installed in the cane 2, the pocket receiver 10 receives this signal, and he compounds a sound or voice according to this input signal, and is trying to tell a pedestrian 1 the information on front obstruction 51 grade from the loudspeaker 6 of the pocket receiver 10.
[0358] Next, an operation of the HYUMANNABI system by the gestalt of this operation constituted as mentioned above is explained.
[0359] The small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0360] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.
[0361] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.
[0362] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0363] The image processing signal concerned is transmitted from the transmitter 9 installed in the cane 2, and this signal is received by body of receiver 10a of the pocket receiver 10.
[0364] According to the output signal from body of receiver 10a, a speech synthesizer 11 compounds voice, from a loudspeaker (or year horn) 12, is changed into a sound or voice and tells a pedestrian 1 the contents of information.
[0365] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a bicycle approaching from the method of the forward right", etc.
[0366] This becomes possible to offer walk exchange to elderly people, a dysopsia person, etc.
[0367] Moreover, the magnitude of an obstruction 51, the distance to an obstruction 51, the passing speed of an obstruction 51, etc. can be more correctly recognized by carrying out an image processing using the information on two or more small cameras 5.
[0368] As mentioned above, in the HYUMANNABI system of the gestalt of this operation, it becomes possible to attain lightweight-ization of a cane 2 by separating a means to generate the pocket receiver 10 and a sound, or a sound signal from a cane 2.
[0369] Moreover, it becomes possible to divert a cellular phone etc. as a pocket receiver 10, and it becomes possible to offer an economical walk support system.
[0370] Furthermore, it becomes possible by combining the migration mold PC (personal computer) with the pocket receiver 10 side to aim at improvement in the further function.
[0371] Thereby, while advanced walk exchange can be offered to elderly people, a dysopsia person, etc., it becomes possible to use a telecommunications service.
[0372] (The gestalt of the 14th operation: Correspond to claim 15) Drawing 28 is a conceptual diagram for explaining the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0373] In drawing 28 , the cane in which a pedestrian has 1 and a pedestrian 1 has 2, and 21 are attached in the shank of a cane 2, 3 is attached near the point of a cane 2, the sensor which detects and outputs physical signals, such as light, MAG, or an electric signal, and 31 are attached in a wireless tag, 4 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction sensor which detects an obstruction 41 and outputs a signal is shown, respectively.
[0374] Drawing 29 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0375] In drawing 29 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0376] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, the small loudspeaker 6 which generates a sound or a sound signal, and one vibrator 7 which vibrates according to the output signal from the obstruction

sensor 4.

[0377] Drawing 29 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0378] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 29 (b), The speech synthesizer from which 61 changes the signal from the signal-processing machine 32 into a sound or a sound signal, The small loudspeaker in which 6 generates a sound or a sound signal (or year horn), The signal-processing machine with which 42 processes the output signal from the obstruction sensor 4, the oscillating pattern generator from which 71 changes the signal from the signal-processing machine 42 into the oscillating pattern of vibrator 7, and 7 show the vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.

[0379] That is, he changes into an oscillating pattern the signal which changed and transmitted the information signal from the wireless tag 31 which the sensor 3 detected to a sound or voice, and the obstruction sensor 4 received, and is trying to tell obstruction information etc. through the feeling of a pedestrian's 1 hand, or a finger.

[0380] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0381] A sensor 3 reads point information, such as geographic information and a level difference of a foot walk, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade. And this is changed into voice (or sound) and it tells a pedestrian 1.

[0382] Moreover, the obstruction detection sensors 4, such as an ultrasonic sensor, are attached in the shank 21 of a cane 2, or the part of a rod, and the magnitude of the obstruction 41 ahead of a pedestrian 1, a class, distance, etc. are detected.

[0383] According to the output signal of this obstruction sensor 4, at least one vibrator 7 attached in the part of the shank 21 of a cane 2 is vibrated, and it tells a pedestrian's 1 hand or finger.

[0384] According to the output signal of the obstruction sensor 4, magnitude, a class, distance of an obstruction 41, etc. can be judged by changing the oscillation frequency and the amplitude of at least one vibrator 7.

[0385] On the other hand, the signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference or obstruction 41 grade, and a sensor 3 receives this wireless electric wave.

[0386] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0387] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.

[0388] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a bus stop and 22] a fish dealer and 34 like the baker.

[0389] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.

[0390] A sensor 3 receives this digital radio signal, and decodes the contents of information with the signal-processing vessel 32.

[0391] Next, this is changed into a sound or voice with a speech synthesizer 61, and the contents of information are told to a pedestrian 1 from a loudspeaker 6.

[0392] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a station turning at the next crossing on the left, and being 50m beyond", etc.

[0393] Moreover, the obstruction detection sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 41 ahead of a pedestrian 1 is detected.

[0394] The obstruction sensor 4 detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.

[0395] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.

[0396] Signal processing of the output signal of the obstruction sensor 4 is carried out through the signal-processing machine 42, vibrator 7 is vibrated by the pattern decided by the oscillating pattern generator 71 according to magnitude, distance, passing speed of an obstruction 41, etc., and information is told through the feeling of a pedestrian's 1 hand, or a finger.

[0397] For example, a large thing is long in vibration periods, a small thing is short in vibration periods, and patterns, such as vibration with the strong thing of vibration with a far weak thing and near, are prepared.

[0398] Thereby, the obstruction 41 during a walk is quickly transmitted through the feeling of a pedestrian's 1 hand, or a finger, and becomes possible [supporting a walk to elderly people, a dysopsia person, a hearing impairment person, etc.].

[0399] Moreover, it becomes possible by using two or more vibrator 7 to tell more detailed information.

[0400] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation, point information, such as geographic information and a foot-walk level difference, can be grasped with voice (or sound), and the sensor 3 of the point of a cane 2 enables it to grasp quickly an obstruction 41 and the thing which is moving through the feeling of a pedestrian's 1 hand, or a finger by the obstruction sensor 4.

[0401] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.

[0402] (The gestalt of the 15th operation: Correspond to claim 16) Drawing 30 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0403] In drawing 30 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0404] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, the small loudspeaker 6 which generates a sound or a sound signal, and one vibrator 7 which vibrates according to the output signal from a sensor 3.

[0405] Drawing 30 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0406] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 30 (b), The oscillating pattern generator from which 71 changes the signal from the signal-processing machine 32 into vibration of vibrator 7, The vibrator with which 7 vibrates according to the output signal from the oscillating pattern generator 71, The signal-processing machine with which 42 processes the output signal from the obstruction sensor 4, the speech synthesizer from which 61 changes the signal from the signal-processing machine 42 into a sound or a sound signal, and 6 show the small loudspeaker (or year horn) which generates a sound or a sound signal, respectively.

[0407] That is, he changes into a sound or voice the signal which changed into the oscillating pattern the information signal from the wireless tag 31 which the sensor 3 detected, and told through the feeling of a pedestrian's 1 hand, or a finger, and the obstruction sensor 4 received, and is trying to transmit obstruction information etc.

[0408] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0409] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0410] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0411] Signal processing of the digital radio signal received by the sensor 3 is carried out with the signal-processing vessel 32, and the contents of information are decoded.

[0412] Next, this is changed to a certain decided oscillating pattern with the oscillating pattern generator 71, vibrator 7 is vibrated, and the above-mentioned contents of information are told to a pedestrian 1 through the feeling of a pedestrian's 1 hand, or a finger.

[0413] Moreover, the obstruction detection sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 41 ahead of a pedestrian 1 is detected.

[0414] The obstruction sensor 4 detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.
[0415] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.
[0416] Signal processing of the output signal of the obstruction sensor 4 is carried out through the signal-processing machine 42, this is changed into a sound or voice with a speech synthesizer 61, and the contents of information are told to a pedestrian 1 from a loudspeaker 6.
[0417] For example, it tells "an obstruction is ahead", there "there being a level difference 5m ahead", etc.

[0418] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 reads point information, such as geographic information and a level difference of a foot walk, vibrates at least one vibrator 7 attached in the part of the shank 21 of a cane 2 according to this, and becomes possible [telling a pedestrian's 1 hand or finger].
[0419] Moreover, it becomes possible by changing the oscillation frequency and the amplitude of at least one vibrator 7 to identify the contents of information, such as level difference information and the current position.
[0420] Furthermore, by the obstruction detection sensors 4, such as an ultrasonic sensor attached in the shank 21 of a cane 2, or the part of a rod, the magnitude of the obstruction 41 ahead of a pedestrian 1, a class, distance, etc. are detected, this is changed into voice (or sound), and it becomes possible to tell a pedestrian 1.
[0421] That is, point information, such as geographic information and a foot-walk level difference, can be grasped through the feeling of a pedestrian's 1 hand, or a finger by the sensor 3 of the point of a cane 2, and an obstruction 41 and the thing which is moving can be grasped with voice (or sound) by the obstruction sensor 4.
[0422] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.
[0423] (The gestalt of the 16th operation: Correspond to claim 17) Drawing 31 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0424] In drawing 31 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0425] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the vibrator 7 which vibrates according to the output signal from the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and a sensor 3 or the obstruction sensor 4.
[0426] Drawing 31 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0427] In drawing 31 (b), the signal-processing machine with which 34 processes the signal and the output signal from the obstruction sensor 4 which the sensor 3 received, the oscillating pattern generator from which 71 changes the signal from the signal-processing machine 34 into vibration of Vibrator 7a and 7b, and 7a and 7b show two or more vibrator (this example two) which vibrates according to the output signal from the oscillating pattern generator 71, respectively.
[0428] That is, he changes into the oscillating pattern of Vibrator 7a and 7b the information signal from the wireless tag 31 which the sensor 3 detected, and the signal which the obstruction sensor 4 received, and is trying to transmit obstruction information etc. through the feeling of a pedestrian's 1 hand, or a finger.
[0429] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0430] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0431] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0432] Moreover, the obstruction detection sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 41 ahead of a pedestrian 1 is detected.

[0433] The obstruction sensor 4 detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.

[0434] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.

[0435] Signal processing of the digital radio signal received by the sensor 3 and the output signal of the obstruction sensor 4 is carried out with the signal-processing vessel 34, and the contents of information are decoded.

[0436] Next, this is changed into a certain decided oscillating pattern with the oscillating pattern generator 71, Vibrator 7a and 7b is vibrated, and the above-mentioned contents of information are told to a pedestrian 1 through the feeling of a pedestrian's 1 hand, or a finger.

[0437] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade By the obstruction detection sensor 4 using the supersonic wave which the sensor 3 read point information, such as geographic information and a level difference of a foot walk, and was attached in the shank 21 of a cane 2, or the part of a rod The magnitude of the obstruction 41 ahead of a pedestrian 1, a class, distance, etc. are detected, at least one vibrator 7 attached in the part of the shank 21 of a cane 2 is vibrated according to these, and it becomes possible to tell a pedestrian's 1 hand or finger.

[0438] Moreover, it becomes possible by changing the oscillation frequency and the amplitude of at least one vibrator 7 to identify the contents of information, such as level difference information and the current position.

[0439] That is, point information, such as geographic information and a foot-walk level difference, can be grasped by the sensor 3 of the point of a cane 2, and an obstruction 41 and the thing which is moving can be quickly grasped through the feeling of a pedestrian's 1 hand, or a finger by the obstruction sensor 4.

[0440] This becomes possible to elderly people, a dysopsia person, a hearing impairment person, etc. to offer more advanced walk exchange.

[0441] (The gestalt of the 17th operation: Correspond to claim 18) Drawing 32 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0442] In drawing 32 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0443] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small loudspeaker 6 which generates a sound or a sound signal according to the output signal from the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and a sensor 3 or the obstruction sensor 4.

[0444] Drawing 32 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0445] In drawing 32 (b), the signal-processing machine with which 34 processes the signal and the output signal from the obstruction sensor 4 which the sensor 3 received, the speech synthesizer from which 61 changes the signal from the signal-processing machine 34 into a sound or a sound signal, and 6 show the small loudspeaker which generates a sound or a sound signal, respectively.

[0446] That is, he changes into a sound or a sound signal the information signal from the wireless tag 31 which the sensor 3 detected, and the signal which the obstruction sensor 4 received, and is trying to tell a pedestrian 1 these contents of information.

[0447] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0448] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0449] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0450] Moreover, the obstruction detection sensor 4 using a supersonic wave etc. is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 41 ahead of a pedestrian 1 is detected.

[0451] The obstruction sensor 4 detects the magnitude and distance of an obstruction 41 by measuring the magnitude and the phase of a signal which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.

[0452] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.

[0453] Signal processing of the digital radio signal received by the sensor 3 and the output signal of the obstruction sensor 4 is carried out with the signal-processing vessel 34, and the contents of information are decoded.

[0454] Next, this is changed into a sound or a sound signal with a speech synthesizer 61, and the above-mentioned contents of information are told to a pedestrian 1 through a loudspeaker (or year horn) 6.

[0455] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade By the obstruction detection sensor 4 using the supersonic wave which the sensor 3 read point information, such as geographic information and a level difference of a foot walk, and was attached in the shank 21 of a cane 2, or the part of a rod The magnitude of the obstruction 41 ahead of a pedestrian 1, a class, distance, etc. are detected, required information is changed into voice (or sound) according to these, and it becomes possible to tell a pedestrian 1.

[0456] That is, point information, such as geographic information and a foot-walk level difference, can be grasped by the sensor 3 of the point of a cane 2, and an obstruction 41 and the thing which is moving can be grasped with voice (or sound) by the obstruction sensor 4.

[0457] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.

[0458] (The gestalt of the 18th operation: Correspond to claim 19) Drawing 33 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0459] In drawing 33 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0460] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the transmitter 9 which transmits on radio the output signal from the obstruction sensor 4 which detects an obstruction 41 and outputs a signal, and a sensor 3 or the obstruction sensor 4.

[0461] Drawing 33 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0462] In drawing 33 (b), the body of a receiver with which 10a receives the radio signal from a transmitter 9, the speech synthesizer from which 11 changes the signal from body of receiver 10a into a sound or a sound signal, and 12 show the small loudspeaker (or year horn) which generates a sound or a sound signal according to the output signal of a speech synthesizer 11 in the transmitter and the pocket receiver 10 with which 9 transmits the signal from said signal-processing machine 34 on radio, respectively.

[0463] That is, the information signal from the wireless tag 31 which the sensor 3 detected, and the signal which the obstruction sensor 4 received are processed, it transmits, the pocket receiver 10 receives this signal, and he changes into a sound or a sound signal, and is trying to tell a pedestrian 1 these contents of information from the loudspeaker 6 of the pocket receiver 10.

[0464] Next, an operation of the HYUMANNABI system by the gestalt of this operation constituted as mentioned above is explained.

[0465] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0466] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0467] Moreover, the obstruction detection sensor 4 using a supersonic wave etc. is attached in the shank of a cane 2, or the part of a rod, and the obstruction 41 ahead of a pedestrian is detected.

[0468] The obstruction sensor 4 detects the magnitude and distance of an obstruction 41 by measuring the signal magnitude and the phase which apply a supersonic wave to the front obstruction 41, and come to it on the contrary.

[0469] Moreover, to the object which is moving, it can judge whether it keeps away whether it approaches by asking for time amount change of distance with an obstruction 41.

[0470] Signal processing of the digital radio signal received by the sensor 3 and the output signal of the obstruction sensor 4 is carried out with the signal-processing vessel 34, the contents of information are decoded, and it transmits with a transmitter 9.

[0471] Body of receiver 10a of the pocket receiver 10 receives the above-mentioned signal, it changes into a sound or a sound signal with a speech synthesizer 11, and the contents of information are told to a pedestrian 1 through a loudspeaker (or year horn) 12.

[0472] As mentioned above, in the HYUMANNABI system of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade By the obstruction detection sensor 4 using the supersonic wave which the sensor 3 read point information, such as geographic information and a level difference of a foot walk, and was attached in the shank 21 of a cane 2, or the part of a rod With the transmitter 9 in which the magnitude of the obstruction 41 ahead of a pedestrian 1, a class, distance, etc. were detected, and these output signals were contained by the cane 2, on radio Delivery, Since the pocket receiver 10 which the pedestrian 1 has independently can receive this, this signal (information) can be changed into voice (or sound) and it can tell a pedestrian 1, Point information, such as a ground, and ******, a foot-walk level difference, can be grasped with voice (or sound) by the sensor 3 of the point of a cane 2, and the obstruction sensor 4 enables it to grasp that to which the obstruction 41 is moving with voice (or sound).

[0473] Moreover, it becomes possible to attain lightweight-ization of a cane 2 by separating a means to generate the pocket receiver 10 and a sound, or a sound signal from a cane 2.

[0474] Furthermore, it becomes possible to divert a cellular phone etc. as a pocket receiver 10, and it becomes possible to offer an economical walk support system.

[0475] It becomes possible by combining the migration mold PC (personal computer) with the pocket receiver 10 side to aim at improvement in the further function further again.

[0476] This becomes possible to elderly people, a dysopsia person, etc. to offer advanced walk exchange.

[0477] (The gestalt of the 19th operation: Correspond to claim 20) Drawing 34 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0478] In drawing 34 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0479] The shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, the small loudspeaker 6 which generates a sound or a sound signal, and one vibrator 7 which vibrates according to the output signal from the small camera 5.

[0480] Drawing 34 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0481] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 34 (b), The speech synthesizer from which 61 changes the signal from the signal-processing machine 32 into a sound or a sound signal, The small loudspeaker in which 6 generates a sound or a sound signal (or year horn), The image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, The oscillating pattern generator from which 71 changes the output signal from the image-processing machine 52 into the oscillating pattern of

vibrator 7, and 7 show the vibrator which vibrates according to the output signal from the oscillating ,pattern generator 71, respectively.
[0482] That is, he changes into an oscillating pattern the picture signal which changed and transmitted the information signal from the wireless tag 31 which the sensor 3 detected to a sound or voice, and the small camera 5 detected, and is trying to tell through the feeling of a pedestrian's 1 hand, or a finger.
[0483] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0484] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.
[0485] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.
[0486] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.
[0487] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a bus stop and 22] a fish dealer and 34 like the baker.
[0488] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.
[0489] A sensor 3 receives this digital radio signal, and decodes the contents of information with the signal-processing vessel 32.
[0490] Next, this is changed into a sound or voice with a speech synthesizer 61, and the contents of information are told to a pedestrian 1 from a loudspeaker 6.
[0491] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a station turning at the next crossing on the left, and being 50m beyond", etc.
[0492] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0493] This detected picture signal is processed with the image-processing vessel 52, and it recognizes what an object is.
[0494] With the following oscillating pattern generator 71, it changes into the decided oscillating pattern which exists according to this recognized object, vibrator 7 is vibrated, and information is told through the feeling of a pedestrian's 1 hand, or a finger.
[0495] In this case, it becomes possible by using two or more vibrator 7 to tell more detailed information.
[0496] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation, point information, such as geographic information and a foot-walk level difference, can be grasped with voice (or sound), and the sensor 3 of the point of a cane 2 enables it to grasp quickly an obstruction 51 and the thing which is moving through the feeling of a pedestrian's 1 hand, or a finger with the small camera 5.
[0497] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.
[0498] (The gestalt of the 20th operation: Correspond to claim 21) Drawing 35 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0499] In drawing 35 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0500] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, the small loudspeaker 6 which generates a sound or a sound signal, and one vibrator 7 which vibrates according to the output signal from the small camera 5.
[0501] Drawing 35 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0502] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 35 (b), The oscillating pattern generator from which 71 changes the output signal from the signal-processing machine 32 into the oscillating pattern of vibrator 7, The vibrator with which 7 vibrates

according to the output signal from the oscillating pattern generator 71, The image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, the speech synthesizer from which 61 changes the output signal from the image-processing machine 52 into a sound or a sound signal, and 6 show the small loudspeaker which generates a sound or a sound signal, respectively.
[0503] That is, he changes into a sound or voice the video signal which changed into the oscillating pattern the information signal from the wireless tag 31 which the sensor 3 detected, and transmitted through the feeling of a pedestrian's 1 hand, or a finger, and the small camera 5 incorporated, and is trying to tell it.
[0504] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0505] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.
[0506] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to an object -- ** -- the contents of information are received as digital value so that it may say.
[0507] Signal processing of the digital radio signal received by the sensor 3 is carried out with the signal-processing vessel 32, and the contents of information are decoded.
[0508] Next, this is changed into a certain decided oscillating pattern with the oscillating pattern generator 71, vibrator 7 is vibrated, and the above-mentioned contents of information are told to a pedestrian 1 through the feeling of a pedestrian's 1 hand, or a finger.
[0509] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0510] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.
[0511] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.
[0512] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0513] According to the output signal from the image-processing machine 52, a speech synthesizer 61 compounds voice and tells a pedestrian 1 the contents of information from a loudspeaker 6.
[0514] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a bicycle approaching from the method of the forward right", etc.
[0515] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 reads point information, such as geographic information and a level difference of a foot walk, vibrates the vibrator 7 attached in the part of the shank 21 of a cane 2 according to this, and becomes possible [telling a pedestrian's 1 hand or finger].
[0516] In this case, it becomes possible by changing the oscillation frequency and the amplitude of vibrator 7 to distinguish the contents of information.
[0517] Moreover, at least one small camera 5, such as a CCD camera, is attached in the shank 21 of a cane 2, or the part of a rod, the image of the pedestrian 1 front is detected into it, an image processing is carried out to it using the output signal of the small camera 5 concerned, this is changed into voice (or sound), and it becomes possible to tell a pedestrian 1 information, such as magnitude of an obstruction 51, and a class, distance.
[0518] That is, an obstruction 51 and the thing which is moving can be grasped with voice (or sound) by being able to grasp point information, such as geographic information and a foot-walk level difference, with the feeling of a pedestrian's 1 hand, or a finger, and carrying out the image processing of the image of at least one small camera 5 by the sensor 3 of the point of a cane 2.
[0519] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.
[0520] (The gestalt of the 21st operation: Correspond to claims 22, 23, and 27) Drawing 36 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the

gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0521] In drawing 36 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0522] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, and the vibrator 7 of plurality (this example two) which vibrates according to the output signal from a sensor 3 or the small camera 5.
[0523] Drawing 36 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0524] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 36 (b), The image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, The oscillating pattern generator from which 71 changes the output signal from the signal-processing machine 32 or the output signal from the image-processing machine 52 into the oscillating pattern of Vibrator 7a and 7b, and 7a and 7b show the vibrator which vibrates according to the output signal from the oscillating pattern generator 71, respectively.
[0525] That is, he changes into the oscillating pattern of Vibrator 7a and 7b the information signal from the wireless tag 31 which the sensor 3 detected, and the video signal which the small camera 5 incorporated, and is trying to transmit obstruction information etc. to a pedestrian 1 through the feeling of a pedestrian's 1 hand, or a finger.
[0526] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0527] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.
[0528] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.
[0529] Signal processing of the digital radio signal received by the sensor 3 is carried out with the signal-processing vessel 32, and the contents of information are decoded.
[0530] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0531] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.
[0532] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.
[0533] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0534] The oscillating pattern generator 71 is changed into the decided oscillating pattern according to the output signal of the signal-processing machine 32 and the image-processing machine 52, vibrates two or more vibrator 7a and 7b, and tells a pedestrian 1 the above-mentioned contents of information through the feeling of a pedestrian's 1 hand, or a finger.
[0535] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 reads point information, such as geographic information and a level difference of a foot walk. Into moreover, the shank 21 of a cane 2 or the part of a rod Attach at least one small camera 5, such as a CCD camera, and the image of the pedestrian 1 front is detected. An image processing is carried out using the output signal of the small camera 5 concerned, two or more vibrator 7a and 7b attached in the part of the shank 21 of a cane 2 is vibrated according to these, and it becomes possible to tell a pedestrian's 1 hand or finger.
[0536] In this case, according to the output signal of a sensor 3 or the image-processing machine 52, it becomes possible by changing the oscillation frequency and the amplitude of Vibrator 7a and 7b to identify the contents of information.

[0537] Moreover, it becomes possible to grasp contents, an obstruction, etc. of geographic information or point information through the feeling of a pedestrian's 1 hand, or a finger by attaching two or more vibrator 7a and 7b respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and choosing the vibrator vibrated according to the informational contents.

[0538] That is, an obstruction 51 and the thing which is moving can be grasped with the feeling of a pedestrian's 1 hand, or a finger by being able to grasp point information, such as geographic information and a foot-walk level difference, and carrying out the image processing of the image of at least one small camera 5 by the sensor 3 of the point of a cane 2.

[0539] This becomes possible to elderly people, a dysopsia person, a hearing impairment person, etc. to offer more advanced walk exchange.

[0540] (The gestalt of the 22nd operation: Correspond to claim 24) Drawing 37 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0541] In drawing 37 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0542] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, and the small loudspeaker 6 which generates a sound or a sound signal.

[0543] Drawing 37 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0544] In drawing 37 (b), the signal-processing machine with which 32 processes the signal which the sensor 3 received, the image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, the speech synthesizer from which 61 changes the output signal from the signal-processing machine 32 or the image-processing machine 52 into a sound or a sound signal, and 6 show the small loudspeaker which generates a sound or a sound signal, respectively.

[0545] That is, he changes into a sound or a sound signal the information signal from the wireless tag 31 which the sensor 3 detected, and the video signal which the small camera 5 incorporated, and is trying to tell a pedestrian 1 these contents of information.

[0546] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0547] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0548] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- say -- the contents of information are received as digital value.

[0549] Signal processing of the digital radio signal received by the sensor 3 is carried out with the signal-processing vessel 32, and the contents of information are decoded.

[0550] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.

[0551] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.

[0552] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.

[0553] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.

[0554] With a speech synthesizer 61, the output signal of the signal-processing machine 32 and the output signal of the image-processing machine 52 are changed into a sound or voice, and the contents of information are told to a pedestrian 1 through a loudspeaker (or year horn) 6.

[0555] For example, the case where the automobile has approached from the front "it is dangerous. "It is an OO town ** address here" etc. is told to a pedestrian 1 as that an automobile approaches from the front", and geographic information.

[0556] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 reads point information, such as geographic information and a level difference of a foot walk. Into moreover, the shank 21 of a cane 2 or the part of a rod Attach at least one small camera 5, such as a CCD camera, and the image of the pedestrian 1 front is detected. An image processing is carried out using the output signal of the small camera 5 concerned, these are changed into voice (or sound), and it becomes possible to tell a pedestrian 1 geographic information, point information, and information, such as the magnitude and the class of obstruction 51, and distance.

[0557] That is, an obstruction 51 and the thing which is moving can be grasped with voice (or sound) by being able to grasp point information, such as geographic information and a foot-walk level difference, with voice (or sound), and carrying out the image processing of the image of at least one small camera 5 by the sensor 3 of the point of a cane 2.

[0558] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.

[0559] (The gestalt of the 23rd operation: Correspond to claim 25) Drawing 38 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0560] In drawing 38 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0561] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, the small loudspeaker 6 which generates a sound or a sound signal, and one vibrator 7 which vibrates according to the output signal from the small camera 5.

[0562] Drawing 38 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0563] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 38 (b), The speech synthesizer from which 61 changes the output signal from the signal-processing machine 32 into a sound or a sound signal, The small loudspeaker in which 6 generates a sound or a sound signal, the image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, The oscillating pattern generator from which 71 changes the output signal from the image-processing machine 52 into the oscillating pattern of vibrator 7, and 7a and 7b show the vibrator of plurality (this example two) which vibrates according to the output signal from the oscillating pattern generator 71, respectively.

[0564] That is, he changes into an oscillating pattern the video signal which changed and transmitted the information signal from the wireless tag 31 which the sensor 3 detected to a sound or voice, and the small camera 5 incorporated, and is trying to tell obstruction information etc. through the feeling of a pedestrian's 1 hand, or a finger.

[0565] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0566] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0567] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0568] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.

[0569] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a bus stop and 22] a fish dealer and 34 like the baker.

[0570] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.

[0571] A sensor 3 receives this digital radio signal, and decodes the contents of information with the signal-processing vessel 32.

[0572] Next, this is changed into a sound or voice with a speech synthesizer 61, and the contents of information are told to a pedestrian 1 from a loudspeaker 6.

[0573] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a station turning at the next crossing on the left, and being 50m beyond", etc.

[0574] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.

[0575] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.

[0576] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.

[0577] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.

[0578] With the oscillating pattern generator 71, according to the output signal of the image-processing machine 52, two or more vibrator 7a and 7b by the decided pattern is vibrated, and information is told through the feeling of a pedestrian's 1 hand, or a finger.

[0579] In this case, it becomes possible by using two or more vibrator 7a and 7b to tell more detailed information.

[0580] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation, point information, such as geographic information and a foot-walk level difference, can be grasped with voice (or sound) by the sensor 3 of the point of a cane 2, and an obstruction 51 and the thing which is moving can be quickly grasped through the feeling of a pedestrian's 1 hand, or a finger with the signal from the small camera 5.

[0581] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.

[0582] (The gestalt of the 24th operation: Correspond to claim 26) Drawing 39 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0583] In drawing 39 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0584] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, the small loudspeaker 6 which generates a sound or a sound signal, and the vibrator 7 which vibrates according to the output signal from the small camera 5.

[0585] Drawing 39 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0586] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 39 (b), The oscillating pattern generator from which 71 changes the output signal from the signal-processing machine 32 into the oscillating pattern of vibrator 7, Two or more (this example two) vibrator with which 7a and 7b vibrate according to the output signal from the oscillating pattern generator 71, The image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, the speech synthesizer from which 61 changes the output signal from the image-processing machine 52 into a sound or a sound signal, and 6 show the small loudspeaker which generates a sound or a sound signal, respectively.

[0587] That is, he changes into a sound or voice the video signal which changed into the oscillating pattern the information signal from the wireless tag 31 which the sensor 3 detected, and transmitted through the feeling of a pedestrian's 1 hand, or a finger, and the small camera 5 incorporated, and is trying to tell it.

[0588] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0589] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0590] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0591] Signal processing of the digital radio signal received by the sensor 3 is carried out with the signal-processing vessel 32, and the contents of information are decoded.
[0592] Next, this is changed into a certain decided oscillating pattern with the oscillating pattern generator 71, two or more vibrator 7a and 7b is vibrated, and the above-mentioned contents of information are told to a pedestrian 1 through the feeling of a pedestrian's 1 hand, or a finger.
[0593] In this case, the contents of geographic information or point information can be grasped more in a detail through the feeling of a pedestrian's 1 hand, or a finger by attaching two or more vibrator 7a and 7b respectively corresponding to an index finger, the middle finger, the third finger, and a digitus minimus, and choosing the vibrator vibrated according to the informational contents.
[0594] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0595] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.
[0596] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.
[0597] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0598] The output signal of this image-processing machine 52 is changed into a sound or voice with a speech synthesizer 61, and the contents of information are told to a pedestrian 1 from a loudspeaker 6.
[0599] For example, it tells "an obstruction is ahead", there "there being a level difference 5m ahead", etc.

[0600] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 reads point information, such as geographic information and a level difference of a foot walk, vibrates two or more vibrator 7a and 7b attached in the part of the shank 21 of a cane 2 according to this, and becomes possible [telling a pedestrian's 1 hand or finger of human being].
[0601] Moreover, at least one small camera 5, such as a CCD camera, is attached in the shank 21 of a cane 2, or the part of a rod, the image of the pedestrian 1 front is detected into it, an image processing is carried out to it using the output signal of the small camera 5 concerned, this is changed into voice (or sound), and it becomes possible to tell a pedestrian 1.
[0602] That is, obstruction 51 grade can be recognized to voice or a sound by being able to recognize point information, such as geographic information and a foot-walk level difference, with the feeling of a hand or a finger, and carrying out the image processing of the image of at least one small camera 5 by the sensor 3 of the point of a cane 2.
[0603] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.
[0604] (The gestalt of the 25th operation: Correspond to claim 29) Drawing 40 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0605] In drawing 40 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.
[0606] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, the small loudspeaker 6 which generates a sound or a sound signal, and the concavo-convex panel 8 which changes into a concavo-convex pattern the signal which the small camera 5 incorporated.
[0607] Drawing 40 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0608] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 40 (b), The speech synthesizer from which 61 changes the output signal from the signal-

processing machine 32 into a sound or a sound signal, The small loudspeaker in which 6 generates a sound or a sound signal, the image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, The concavo-convex pattern generator from which 81 changes the signal from said image-processing machine 52 into a concavo-convex pattern, and 8 show the concavo-convex panel which displays the output signal from the concavo-convex pattern generator 81 as a concavo-convex pattern of Braille points or stippling, respectively.

[0609] That is, he changes into a concavo-convex pattern the video signal which changed and transmitted the information signal from the wireless tag 31 which the sensor 3 detected to a sound or voice, and the small camera 5 incorporated, and is trying to tell obstruction information etc. through the feeling of a pedestrian's 1 hand, or a finger.

[0610] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0611] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0612] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0613] In the case of 8 bits, 256 kinds of objects can be decided to 00 - FF by hexadecimal display.

[0614] 00 [for example,] -- a level difference and 01 -- a stairway and 03 -- a zebra zone and 04 -- a footbridge, ..., 10 -- a post office and 11 -- a bank and 12 -- a city office, .., 20 -- a convenience store and 31 fix a taxi stand, .., 30, and, in a supermarket and 32, a greengrocery and 33 fix [a station and 21 / a bus stop and 22] a fish dealer and 34 like the baker.

[0615] the following distance information -- first -- distinction of order, right and left, and the upper and lower sides -- being near (less than 1m) -- being far (100m or more) -- this middle distinction is performed and a still more detailed distance is told.

[0616] A sensor 3 receives this digital radio signal, and decodes the contents of information with the signal-processing vessel 32.

[0617] Next, this is changed into a sound or voice with a speech synthesizer 61, and the contents of information are told to a pedestrian 1 from a loudspeaker 6.

[0618] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a station turning at the next crossing on the left, and being 50m beyond", etc.

[0619] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.

[0620] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.

[0621] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.

[0622] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.

[0623] According to the output signal of the image-processing machine 52, the concavo-convex pattern generator 81 is changed into the concavo-convex pattern of the concavo-convex panel 8, and tells the contents of information through a pedestrian's 1 hand or finger from the concavo-convex panel 8.

[0624] The concavo-convex panel 8 arranges the small projection which can be taken up and down in for example, width 20 train and vertical 10 train, takes up and down each small projection according to the signal from the concavo-convex pattern generator 81, and displays the contents of information as Braille points or stippling.

[0625] In this case, if it uses in Braille-points mode, the information which the small camera 5 detected can be grasped as a Braille-points train.

[0626] Moreover, if it uses in stippling mode, you can understand the form of the profile of obstruction 51 grade also by those who cannot understand Braille points.

[0627] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 reads point information, such as geographic information and a level difference of a foot walk, and changes this into voice (or sound). It tells a pedestrian 1, and at least one small camera 5, such as a CCD camera, is attached in the shank 21 of a cane 2, or the part of a rod, the image of the pedestrian 1 front is detected, and it becomes possible to carry out an image processing using the output signal of the small camera 5 concerned.

[0628] In this case, although an image processing can also be carried out using the information on one small camera 5, it becomes possible by carrying out an image processing using the information on two or more small cameras 5 to recognize more correctly the magnitude of an obstruction 51, the distance to an obstruction 51, the passing speed of an obstruction 51, etc.

[0629] Moreover, it becomes possible to change the concavo-convex pattern attached in the part of the shank 21 of a cane 2 according to the output signal of the image-processing machine 52, and to tell a pedestrian's 1 hand or finger as Braille points or stippling.

[0630] In this case, according to the informational contents, it becomes possible by changing a concavo-convex pattern to identify the class of obstruction 51, magnitude, distance, etc.

[0631] Furthermore, it can be quickly grasped with the feeling of a pedestrian's 1 hand, or a finger by being able to grasp point information, such as geographic information and a foot-walk level difference, with voice (or sound), and carrying out the image processing of the image of at least one small camera 5 by the sensor 3 of the point of a cane 2, being able to use as Braille points or stippling an obstruction 51 and the thing which is moving.

[0632] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.

[0633] (The gestalt of the 26th operation: Correspond to claim 30) Drawing 41 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0634] In drawing 41 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0635] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, the small loudspeaker 6 which generates a sound or a sound signal, and the concavo-convex panel 8 which changes into a concavo-convex pattern the signal which the small camera 5 incorporated.

[0636] Drawing 41 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0637] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 41 (b), The concavo-convex pattern generator from which 81 changes the signal from the signal-processing machine 32 into a concavo-convex pattern, The concavo-convex panel by which 8 displays the output signal from the concavo-convex pattern generator 81 as a concavo-convex pattern of Braille points or stippling, The image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, the speech synthesizer from which 61 changes the output signal from the image-processing machine 52 into a sound or a sound signal, and 6 show the small loudspeaker which generates a sound or a sound signal, respectively.

[0638] That is, he changes into a sound or voice the video signal which changed into the concavo-convex pattern the information signal from the wireless tag 31 which the sensor 3 detected, and transmitted through the feeling of a pedestrian's 1 hand, or a finger, and the small camera 5 incorporated, and is trying to tell it.

[0639] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.

[0640] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0641] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to an object -- ** -- the contents of information are received as digital value so that it may say.

[0642] Signal processing of the digital radio signal received by the sensor 3 is carried out with the signal-processing vessel 32, and the contents of information are decoded.

[0643] According to the output signal of the signal-processing machine 32, the concavo-convex pattern generator 81 is changed into the concavo-convex pattern of the concavo-convex panel 8, and tells the contents of information through a pedestrian's 1 hand or finger from the concavo-convex panel 8.
[0644] The concavo-convex panel 8 arranges the small projection which can be taken up and down in for example, width 20 train and vertical 10 train, takes up and down each small projection according to the signal from the concavo-convex pattern generator 81, and displays the contents of information as Braille points or stippling.
[0645] In this case, if it uses in Braille-points mode, the information which the small camera 5 detected can be grasped as a Braille-points train.
[0646] Moreover, if it uses in stippling mode, you can understand the form of the profile of an object etc. also by those who cannot understand Braille points.
[0647] Moreover, the small camera 5 is attached in the shank of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0648] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.
[0649] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.
[0650] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0651] According to the output signal from the image-processing machine 52, a speech synthesizer 61 compounds voice and tells a pedestrian 1 the contents of information from a loudspeaker 6.
[0652] For example, it tells "there is a level difference 5m ahead", "a public telephone booth being in 2m right-hand side", "a bicycle approaching from the method of the forward right", etc.
[0653] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade A sensor 3 becomes possible [reading point information, such as geographic information and a level difference of a foot walk, changing the concavo-convex pattern attached in the part of the shank 21 of a cane 2 according to this, and telling a pedestrian's 1 hand or finger as Braille points or stippling].
[0654] In this case, according to the informational contents, it becomes possible by changing a concavo-convex pattern to judge point information, such as geographic information and a level difference of a foot walk.
[0655] Moreover, at least one small camera 5, such as a CCD camera, is attached in the shank 21 of a cane 2, or the part of a rod, the image of the pedestrian 1 front is detected into it, an image processing is carried out to it using the output signal of the small camera 5 concerned, this is changed into voice (or sound), and it becomes possible to tell a pedestrian 1.
[0656] In this case, although an image processing can also be carried out using the information on one small camera 5, it becomes possible by carrying out an image processing using the information on two or more small cameras 5 to recognize more correctly the magnitude of an obstruction 51, the distance to an obstruction 51, the passing speed of an obstruction 51, etc.
[0657] That is, an obstruction 51 and the thing which is moving can be grasped with voice (or sound) by being able to grasp point information, such as geographic information and a foot-walk level difference, through the feeling of a pedestrian's 1 hand, or a finger, and carrying out the image processing of the image of at least one small camera 5 by the sensor 3 of the point of a cane 2.
[0658] This becomes possible to elderly people, a dysopsia person, etc. to offer more advanced walk exchange.
[0659] (The gestalt of the 27th operation: Correspond to claim 31) Drawing 42 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0660] In drawing 42 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0661] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the concavo-convex panel 8 which changes into a concavo-convex pattern the signal which the small camera 5 which is an image pick-up means, and the signal or the small camera 5 which the sensor 3 received incorporated.
[0662] Drawing 42 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.
[0663] The signal-processing machine with which 32 processes the signal which the sensor 3 received in drawing 42 (b), the image-processing machine which 52 carries out the image processing of the video signal which the small camera 5 incorporated, and is outputted, the concavo-convex pattern generator from which 81 changes into a concavo-convex pattern the signal from the signal-processing machine 32 and the video signal which the small camera 5 incorporated, and 8 show the concavo-convex panel which displays the output signal from the concavo-convex pattern generator 81 as a concavo-convex pattern of Braille points or stippling, respectively.
[0664] That is, he changes into a concavo-convex pattern the information signal from the wireless tag 31 which the sensor 3 detected, and the video signal which the small camera 5 incorporated, and is trying to transmit obstruction information etc. to a pedestrian 1 through the feeling of a pedestrian's 1 hand, or a finger.
[0665] Next, an operation of the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above is explained.
[0666] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.
[0667] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.
[0668] Signal processing of the digital radio signal received by the sensor 3 is carried out with the signal-processing vessel 32, and the contents of information are decoded.
[0669] Moreover, the small camera 5 is attached in the shank 21 of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.
[0670] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.
[0671] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.
[0672] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0673] According to the output signal of the signal-processing machine 32 and the image-processing machine 52, the concavo-convex pattern generator 81 is changed into the concavo-convex pattern of the concavo-convex panel 8, and tells the contents of information through a pedestrian's 1 hand or finger from the concavo-convex panel 8.
[0674] The concavo-convex panel 8 arranges the small projection which can be taken up and down in for example, width 20 train and vertical 10 train, takes up and down each small projection according to the signal from the concavo-convex pattern generator 81, and displays the contents of information as Braille points or stippling.
[0675] In this case, if it uses in Braille-points mode, the information which the small camera 5 detected can be grasped as a Braille-points train.
[0676] Moreover, if it uses in stippling mode, you can understand the form of the profile of an object also by those who cannot understand Braille points.
[0677] As mentioned above, with the HYUMANNABI cane of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade Point information, such as geographic information and a level difference of a foot walk, is read, and a sensor 3 attaches at least one small camera 5, such as a CCD camera, in the shank 21 of a cane 2, or the part of a rod, detects the image of the pedestrian 1 front, and becomes possible [carrying out an image processing using the output signal of the small camera 5 concerned].

[0678] In this case, although an image processing can also be carried out using the information on one small camera 5, it becomes possible by carrying out an image processing using the information on two or more small cameras 5 to recognize more correctly the magnitude of an obstruction 51, the distance to an obstruction 51, the passing speed of an obstruction 51, etc.

[0679] Moreover, it becomes possible to change the concavo-convex pattern attached in the part of the shank 21 of a cane 2 according to the output signal of a sensor 3 or the image-processing machine 52, and to tell a pedestrian's 1 hand or finger as Braille points or stippling.

[0680] In this case, according to the informational contents, it becomes possible by changing a concavo-convex pattern to identify the class of point information, such as geographic information and a level difference of a foot walk, and obstruction 51, magnitude, distance, etc.

[0681] That is, an obstruction 51 and the thing which is moving can be quickly grasped through the feeling of a pedestrian's 1 hand, or a finger by the sensor 3 of the point of a cane 2 as a concavo-convex pattern of the part of the shank 21 of a cane 2 by carrying out the image processing of the image of the small camera 5 for point information, such as geographic information and a foot-walk level difference, again.

[0682] This becomes possible to elderly people, a dysopsia person, a hearing impairment person, etc. to offer more advanced walk exchange.

[0683] (The gestalt of the 28th operation: Correspond to claim 32) Drawing 43 (a) is the schematic diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0684] In drawing 43 (a), the sensor 3 which detects and outputs physical signals, such as light, MAG, or an electric signal, is attached near the point of a cane 2.

[0685] Moreover, the shank 21 of a cane 2 or the part of a rod is equipped with the small camera 5 which is an image pick-up means, and the transmitter 9 which transmits the output signal from a sensor 3 or the small camera 5 on radio.

[0686] Drawing 43 (b) is the signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of this operation, it gives the same sign to the same element as the gestalt of said operation, omits this explanation, and describes only a part different here.

[0687] In drawing 43 (b), the body of a receiver with which 10a receives the radio signal from a transmitter 9, the speech synthesizer from which 11 changes the signal from body of receiver 10a into a sound or a sound signal, and 12 show the small loudspeaker (or year horn) which generates a sound or a sound signal according to the output signal of a speech synthesizer 11 in the transmitter and the pocket receiver 10 with which 9 transmits the signal from said signal-processing machine 32 and the image-processing machine 52 on radio, respectively.

[0688] That is, the information signal from the wireless tag 31 which the sensor 3 detected, and the video signal which the small camera 5 incorporated are processed, it transmits, the pocket receiver 10 receives this signal, and he changes into a sound or a sound signal, and is trying to tell a pedestrian 1 these contents of information from the loudspeaker 6 of the pocket receiver 10.

[0689] Next, an operation of the HYUMANNABI system by the gestalt of this operation constituted as mentioned above is explained.

[0690] The signal sent from the wireless tag 31 is beforehand decided as digital value to the object of a level difference, an obstruction, etc., and a sensor 3 receives this wireless electric wave.

[0691] for example, the first 8-bit signal -- an object -- the following 8-bit signal -- the distance to there -- ** -- the contents of information are received as digital value so that it may say.

[0692] With the digital radio signal and the signal-processing machine 32 which were received by the sensor 3, signal processing is carried out and the contents of information are decoded.

[0693] Moreover, the small camera 5 is attached in the shank of a cane 2, or the part of a rod, and the obstruction 51 ahead of a pedestrian 1 is detected.

[0694] The small camera 5 judges what an object is by copying out a front image and carrying out the image processing of this.

[0695] With the image-processing vessel 52, forms and the descriptions, such as an automobile, a bicycle, a man and a level difference, and a fixed obstacle, are recorded, and an object is specified as compared with the captured image.

[0696] Moreover, it is whether this object becomes small and whether to become to the object which is moving, and judges whether it keeps away or it approaches.
[0697] The output signal of the signal-processing machine 32 and the image-processing machine 52 is transmitted on radio with a transmitter 9.
[0698] Body of receiver 10a of the pocket receiver 10 receives, this radio signal is changed into a sound or a sound signal with a speech synthesizer 11, and the contents of information are told to a pedestrian 1 through a loudspeaker (or year horn) 12.
[0699] As mentioned above, in the HYUMANNABI system of the gestalt of this operation For example, by putting information, such as geographic information and a level difference of a foot walk, into the wireless tag 31 installed in the road or the magnetic nail 33 grade, and bringing close the point of the cane 2 which the pedestrian 1 has in the wireless tag 31 concerned or the magnetic nail 33 grade Point information, such as geographic information and a level difference of a foot walk, is read, and a sensor 3 attaches at least one small camera 5, such as a CCD camera, in the shank 21 of a cane 2, or the part of a rod, detects the image of the pedestrian 1 front, and becomes possible [carrying out an image processing using the output signal of the small camera 5 concerned].
[0700] In this case, although an image processing can also be carried out using the information on one small camera 5, it becomes possible by carrying out an image processing using the information on two or more small cameras 5 to recognize more correctly the magnitude of an obstruction 51, the distance to an obstruction 51, the passing speed of an obstruction 51, etc.
[0701] Moreover, the pocket receiver 10 in which the pedestrian 1 has delivery and this independently on radio with the transmitter 9 in which the output signal of a sensor 3 or the image-processing machine 52 was contained by the cane 2 receives, this signal (information) is changed into voice (or sound), and it becomes possible to tell a pedestrian 1.
[0702] That is, point information, such as geographic information and a foot-walk level difference, can be grasped with voice (or sound), and the sensor 3 of the point of a cane 2 enables it to grasp an obstruction 51 and the thing which is moving with voice (or sound) with at least one small camera 5.
[0703] Furthermore, it becomes possible to attain lightweight-ization of a cane 2 by separating a means to generate the pocket receiver 10 and a sound, or a sound signal from a cane 2.
[0704] Moreover, it becomes possible to divert a cellular phone as a pocket receiver 10, and it becomes possible to offer an economical walk support system.
[0705] Furthermore, it becomes possible by combining the migration mold PC (personal computer) with the pocket receiver 10 side to aim at improvement in the further function.
[0706] This becomes possible to elderly people, a dysopsia person, etc. to offer advanced walk exchange.
[0707] (The gestalt of the 29th operation: Correspond to claim 28) It is made to change two or more oscillation frequency or amplitudes of Vibrator 7a and 7b with the HYUMANNABI cane by the gestalt of this operation according to the output signal from a sensor 3 or the image-processing machine 52 in the HYUMANNABI cane by the 21st, the 23rd, and the gestalt of each 24th operation which were mentioned above.
[0708] In the HYUMANNABI cane by the gestalt of this operation constituted as mentioned above, according to the output signal from a sensor 3 or the image-processing machine 52, two or more vibrator 7a and 7b attached in the part of the shank 21 of a cane 2 is vibrated, and it becomes possible to tell a pedestrian's 1 hand or finger.
[0709] In this case, according to the output signal from a sensor 3 or the image-processing machine 52, the contents, such as magnitude of an obstruction 51, and a class, distance, geographic information, can be further identified in a detail by changing two or more oscillation frequency and amplitude of each of Vibrator 7a and 7b.
[0710] This becomes possible to elderly people, a dysopsia person, a hearing impairment person, etc. to offer advanced walk exchange.
[0711] (Gestalt of other operations) in addition, this invention is not limited to the gestalt of each above-mentioned implementation, and it is the range which does not deviate from the summary, and many things are boiled, and it can be deformed and carried out at an execution phase Moreover, the gestalt of each operation may be combined as suitably as possible, and may be carried out, and the operation effectiveness combined in that case can be acquired. Furthermore, invention of various phases is included in the gestalt of each above-mentioned implementation, and the proper combination in two or more

requirements for a configuration indicated can extract various invention. For example, even if some requirements for a configuration are deleted from all the requirements for a configuration shown in the gestalt of operation, the technical problem (at least one) stated in the column of Object of the Invention is solvable, and when the effectiveness (at least one) stated in the column of an effect of the invention is acquired, the configuration from which this requirement for a configuration was deleted can be extracted as invention. [0712]

[Effect of the Invention] A sensor technique and information communication technology are made easy to use for the cane which elderly people, a dysopsia person, etc. are using usually according to [as explained above] the HYUMANNABI cane and HYUMANNABI system of this invention, taking in on it, and the obstruction and geographic information at the time of a walk are told to accuracy more, and it becomes possible to offer walk exchange so that he can walk also along the first path in comfort.

[0713] Moreover, it can use for guidance, service information gathering, etc. around a department store, a shopping center, and a station, and it becomes possible to contribute also to expansion of spheres of activity, such as elderly people.

[0714] Furthermore, it becomes possible to be useful also to a problem solving with an insufficient seeing eye dog.

[Translation done.]

* NOTICES *

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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The conceptual diagram for explaining the gestalt of operation of the 1st of this invention.
[Drawing 2] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 1st of this invention.
[Drawing 3] The schematic diagram showing the example of a configuration of the HYUMANNABI cane twisted to the example of a complete-change form of the gestalt of operation of the 1st of this invention.
[Drawing 4] The schematic diagram showing the example of a configuration of the HYUMANNABI cane by other modifications of the gestalt of operation of the 1st of this invention.
[Drawing 5] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 2nd of this invention.
[Drawing 6] The schematic diagram showing the example of a configuration of the HYUMANNABI cane twisted to the example of a complete-change form of the gestalt of operation of the 2nd of this invention.
[Drawing 7] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 4th of this invention.
[Drawing 8] The schematic diagram showing the example of a configuration of the concavo-convex panel in the HYUMANNABI cane by the gestalt of operation of the 4th of this invention.
[Drawing 9] The conceptual diagram for explaining the gestalt of operation of the 5th of this invention.
[Drawing 10] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of operation of the 5th of this invention.
[Drawing 11] The conceptual diagram for explaining the gestalt of operation of the 6th of this invention.
[Drawing 12] The front view and side elevation showing the concrete example of structure of the cane in the HYUMANNABI cane by the gestalt of operation of the 6th of this invention.
[Drawing 13] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 6th of this invention.
[Drawing 14] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane twisted to the example of a complete-change form of the gestalt of operation of the 6th of this invention.
[Drawing 15] The schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by other modifications of the gestalt of operation of the 6th of this invention.
[Drawing 16] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 7th of this invention.
[Drawing 17] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 8th of this invention.
[Drawing 18] The conceptual diagram for explaining the gestalt of operation of the 9th of this invention.
[Drawing 19] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of operation of the 9th of this invention.
[Drawing 20] The conceptual diagram for explaining the gestalt of operation of the 10th of this invention.
[Drawing 21] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 10th of this invention.
[Drawing 22] The front view and side elevation showing the concrete example of structure of the HYUMANNABI cane by the modification of the gestalt of operation of the 10th of this invention.

[Drawing 23] The schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the modification of the gestalt of operation of the 10th of this invention.
[Drawing 24] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 11th of this invention.
[Drawing 25] The schematic diagram showing the concrete example of a configuration of the HYUMANNABI cane by the modification of the gestalt of operation of the 11th of this invention.
[Drawing 26] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 12th of this invention.
[Drawing 27] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of operation of the 13th of this invention.
[Drawing 28] The conceptual diagram for explaining the gestalt of operation of the 14th of this invention.
[Drawing 29] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 14th of this invention.
[Drawing 30] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 15th of this invention.
[Drawing 31] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 16th of this invention.
[Drawing 32] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 17th of this invention.
[Drawing 33] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of operation of the 18th of this invention.
[Drawing 34] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 19th of this invention.
[Drawing 35] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 20th of this invention.
[Drawing 36] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 21st of this invention.
[Drawing 37] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 22nd of this invention.
[Drawing 38] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 23rd of this invention.
[Drawing 39] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 24th of this invention.
[Drawing 40] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 25th of this invention.
[Drawing 41] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 26th of this invention.
[Drawing 42] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI cane by the gestalt of operation of the 27th of this invention.
[Drawing 43] The schematic diagram and signal-processing block diagram showing the concrete example of a configuration of the HYUMANNABI system by the gestalt of operation of the 28th of this invention.
[Description of Notations]
1 -- Pedestrian,
100 -- Foot walk,
200 -- Driveway,
201 -- Automobile,
2 -- Cane,
21 -- Shank,
3 -- Sensor,
31 -- Wireless tag,
32 34 -- Signal-processing machine,
33 -- Magnetic nail,
4 -- Obstruction sensor,
41 -- Obstruction,

42 -- Signal-processing machine,
5, 5a, 5b -- Small camera,
51 -- Obstruction,
52 -- Image-processing machine,
6 -- Loudspeaker,
61 -- Speech synthesizer,
7, 7a, 7b, 7c, 7d -- Vibrator,
71 -- Oscillating pattern generator,
8 -- Concavo-convex panel,
81 -- Concavo-convex pattern generator,
801,802,803 -- Concavo-convex component,
801a -- Smallness projection piece,
801b -- Spring,
801c -- Smallness electromagnet,
801d -- Piece of iron,
9 -- Transmitter,
10 -- Pocket receiver,
10a -- Body of a receiver,
11 -- Speech synthesizer,
12 -- Loudspeaker,
13 -- Year horn.

[Translation done.]

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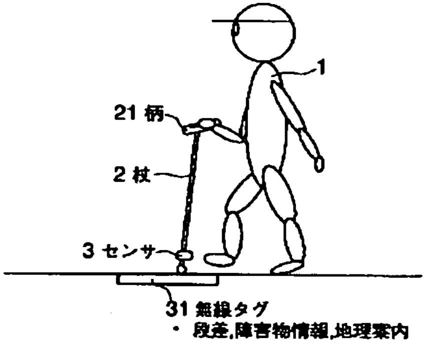
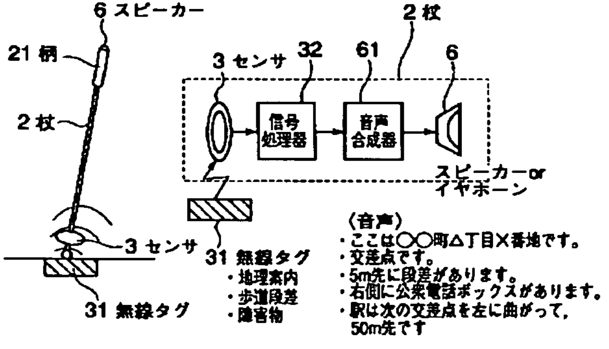
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]

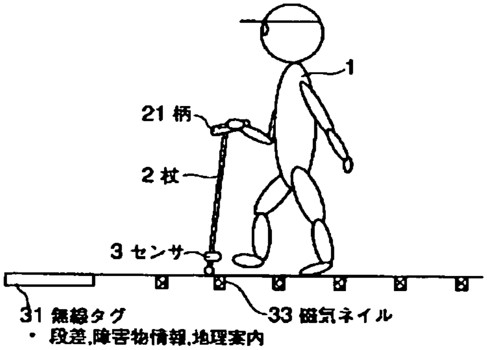

1
21 柄
2 杖
3 センサ
31 無線タグ
・段差,障害物情報,地理案内

[Drawing 2]

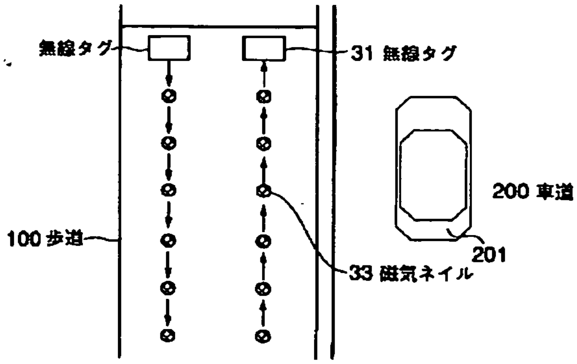

6 スピーカー
21 柄
2 杖
3 センサ
31 無線タグ
2 杖
3 センサ
32
61
6
信号処理器
音声合成器
スピーカーor
イヤホーン
31 無線タグ
・地理案内
・歩道段差
・障害物
(音声)
・ここは○○町△丁目×番地です。
・交差点です。
・5m先に段差があります。
・右側に公衆電話ボックスがあります。
・駅は次の交差点を左に曲がって,
50m先です

(a)　(b)

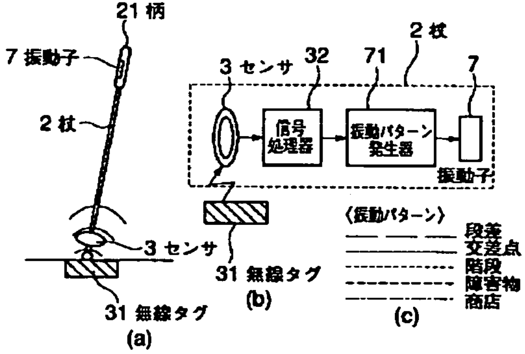
[Drawing 3]


1
21 柄
2 杖
3 センサ
31 無線タグ
・段差,障害物情報,地理案内
33 磁気ネイル

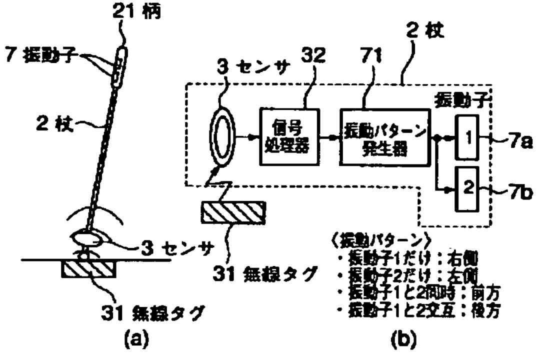
[Drawing 4]


無線タグ
31 無線タグ
200 車道
201
100 歩道
33 磁気ネイル

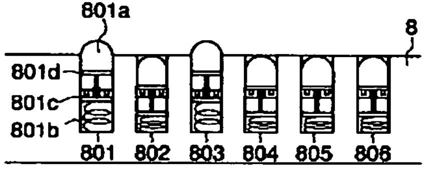
[Drawing 5]


21 柄
7 振動子
2 杖
3 センサ
31 無線タグ
(a)
3 センサ
32
71
2 杖
7
信号処理器
振動パターン発生器
振動子
31 無線タグ
(b)
〈振動パターン〉
段差
交差点
階段
障害物
商店
(c)

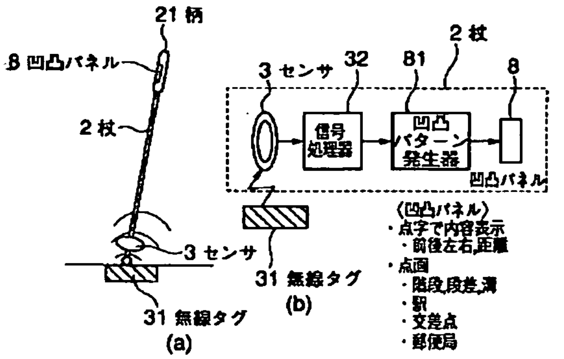
[Drawing 6]


21 柄
7 振動子
2 杖
3 センサ
31 無線タグ
(a)
3 センサ
32
71
2 杖
振動子
信号処理器
振動パターン発生器
1
2
7a
7b
31 無線タグ
〈振動パターン〉
・振動子1だけ：右側
・振動子2だけ：左側
・振動子1と2同時：前方
・振動子1と2交互：後方
(b)

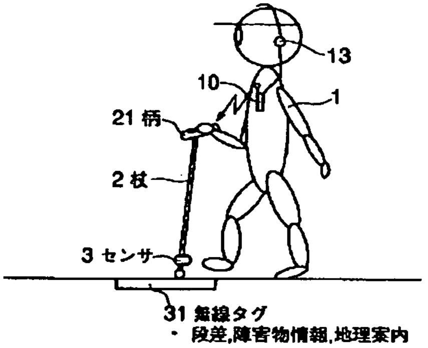
[Drawing 8]


801a
8
801d
801c
801b
801
802
803
804
805
806

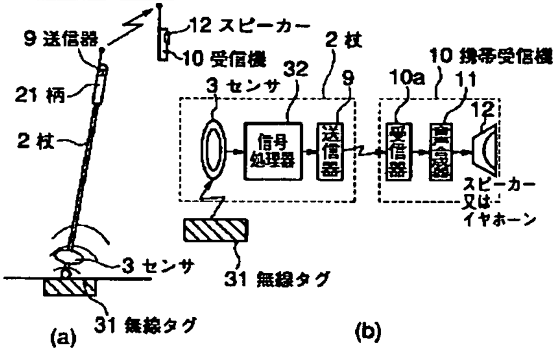
[Drawing 7]


21 柄
8 凹凸パネル
2 杖
3 センサ
31 無線タグ
(a)
3 センサ
32
81
2 杖
8
信号処理器
凹凸パターン発生器
凹凸パネル
31 無線タグ
(b)
〈凹凸パネル〉
・点字で内容表示
・前後左右,距離
・点画
・階段,段差,溝
・駅
・交差点
・郵便局

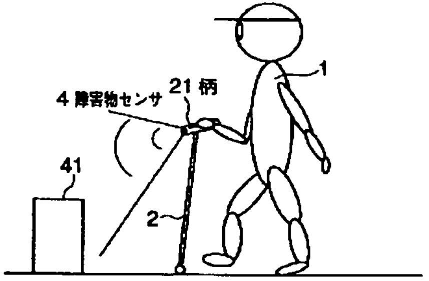
[Drawing 9]


13
10
1
21 柄
2 杖
3 センサ
31 無線タグ
・ 段差,障害物情報,地理案内

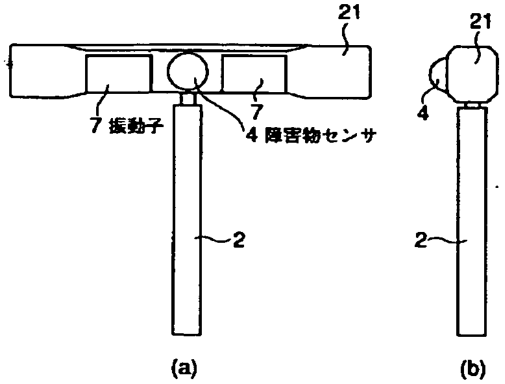
[Drawing 10]


9 送信器
12 スピーカー
10 受信機
21 柄
2 杖
3 センサ
31 無線タグ
(a)
2 杖
32
3 センサ
9
10 携帯受信機
10a
11
12
信号処理器
送信器
受信器
音声合成器
スピーカー又はイヤホーン
31 無線タグ
(b)

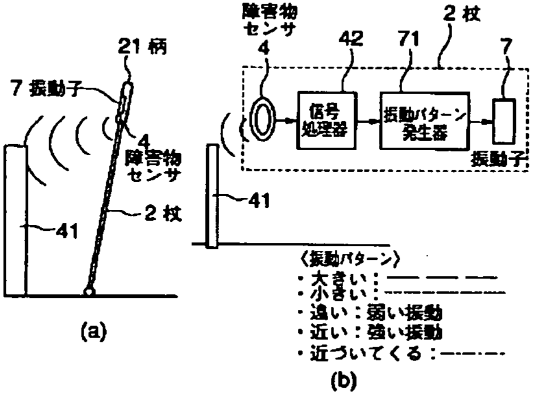
[Drawing 11]


1
4 障害物センサ
21 柄
41
2

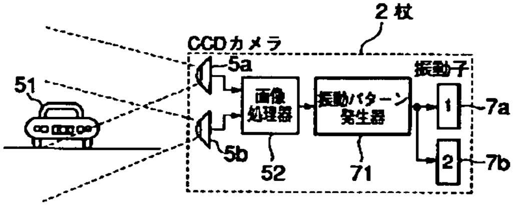
[Drawing 12]


21
7 振動子
4 障害物センサ
7
2
(a)
21
4
2
(b)

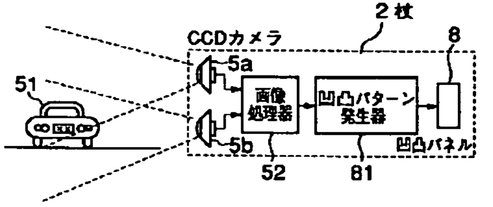
[Drawing 13]


21 柄
7 振動子
4 障害物センサ
2 杖
41
(a)
障害物センサ
4
42
71
2 杖
7
信号処理器
振動パターン発生器
振動子
41
〈振動パターン〉
・大きい：— — —
・小さい：------------
・遠い：弱い振動
・近い：強い振動
・近づいてくる：—·—·—·
(b)

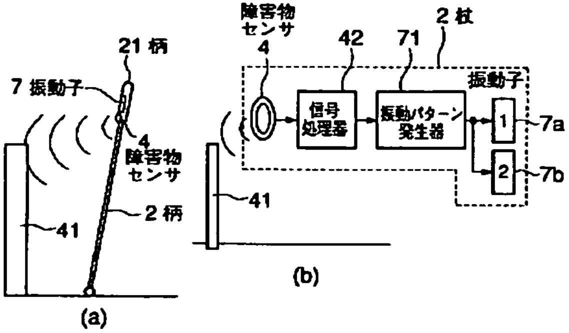
[Drawing 23]


2 杖
CCDカメラ
5a
51
画像処理器
振動パターン発生器
振動子
1
7a
5b
2
7b
52
71

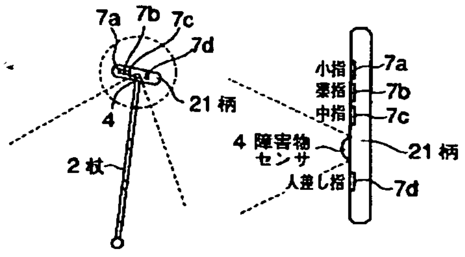
[Drawing 25]


2 杖
CCDカメラ
8
5a
51
画像処理器
凹凸パターン発生器
5b
凹凸パネル
52
81

[Drawing 14]

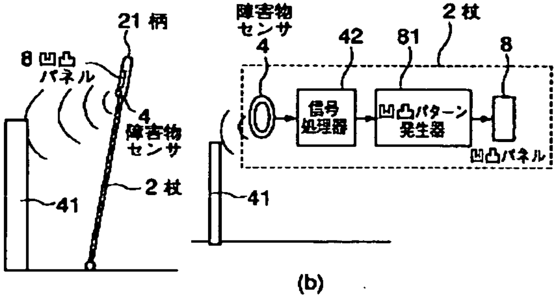

21 柄
7 振動子
4 障害物センサ
2 柄
41
(a)
障害物センサ
4
42
71
2 杖
振動子
信号処理器
振動パターン発生器
1
7a
2
7b
41
(b)

[Drawing 15]


7a
7b
7c
7d
21 柄
4
2 杖
小指
薬指
中指
4 障害物センサ
人差し指
7a
7b
7c
21 柄
7d

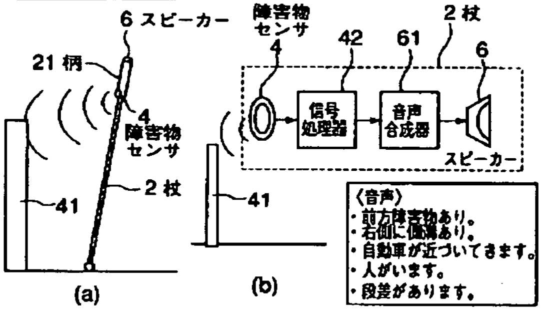
(a)　(b)

[Drawing 16]


21 柄
8 凹凸パネル
4 障害物センサ
2 杖
41
障害物センサ
4
42
81
2 杖
8
信号処理器
凹凸パターン発生器
凹凸パネル
41

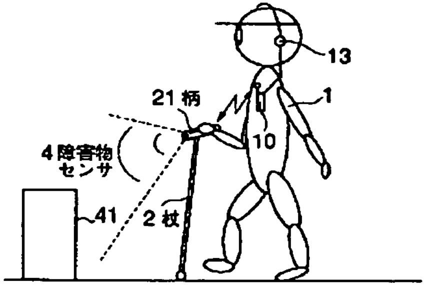
(a)　(b)

[Drawing 17]

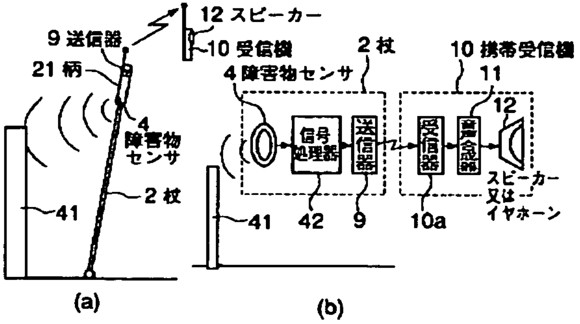

6 スピーカー
21 柄
4 障害物センサ
2 杖
41
障害物センサ
4
42
61
2 杖
6
信号処理器
音声合成器
スピーカー
41
〈音声〉
・前方障害物あり。
・右側に側溝あり。
・自動車が近づいてきます。
・人がいます。
・段差があります。

(a)　(b)

[Drawing 18]

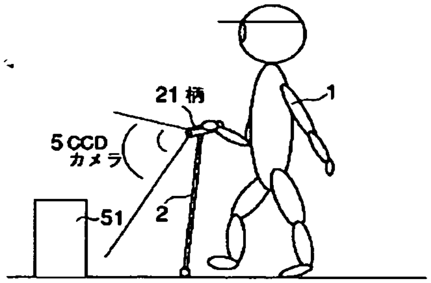

13
1
21 柄
10
4 障害物センサ
41
2 杖

[Drawing 19]

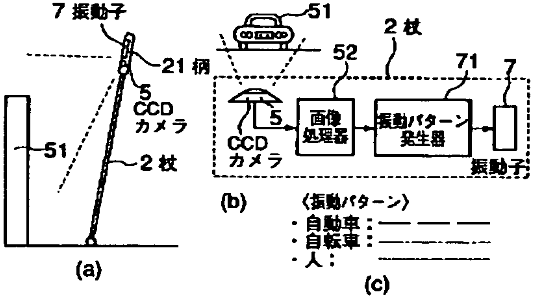

12 スピーカー
9 送信器
10 受信機
21 柄
2 杖
10 携帯受信機
4 障害物センサ
11
12
4 障害物センサ
信号処理器
送信器
受信器
音声合成器
スピーカー又はイヤホーン
2 杖
41
41
42
9
10a

(a)　(b)

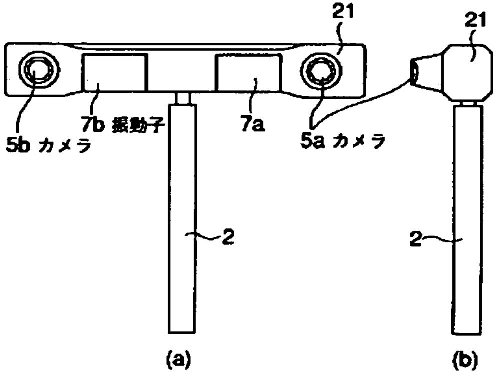
[Drawing 20]


21 柄
1
5 CCD カメラ
51
2

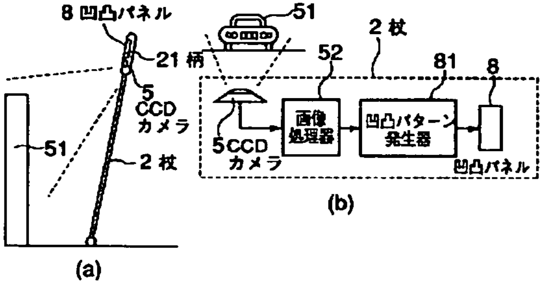
[Drawing 21]


7 振動子
21 柄
5 CCD カメラ
51
2 杖
(a)
51
2 杖
52
71
7
5
CCD カメラ
画像処理器
振動パターン発生器
振動子
(b)
〈振動パターン〉
・自動車：
・自転車：
・人：
(c)

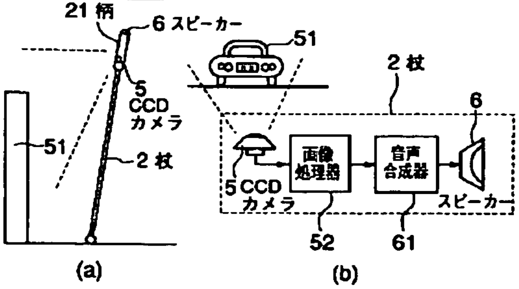
[Drawing 22]


21
21
5b カメラ
7b 振動子
7a
5a カメラ
2
2
(a)
(b)

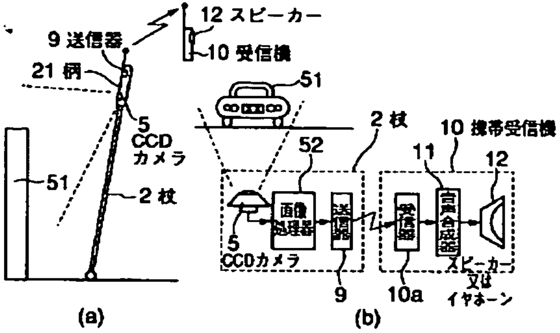
[Drawing 24]


8 凹凸パネル
21 柄
5 CCD カメラ
51
2 杖
(a)
51
2 杖
52
81
8
5CCD カメラ
画像処理器
凹凸パターン発生器
凹凸パネル
(b)

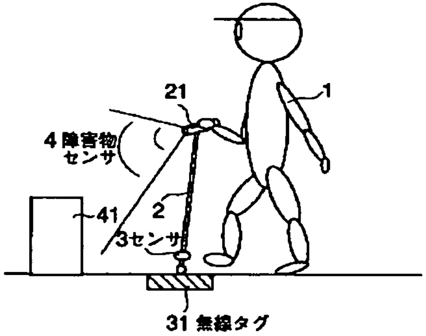
[Drawing 26]


21 柄
6 スピーカー
5 CCD カメラ
51
2 杖
(a)
51
2 杖
6
5 CCD カメラ
画像処理器
音声合成器
スピーカー
52
61
(b)

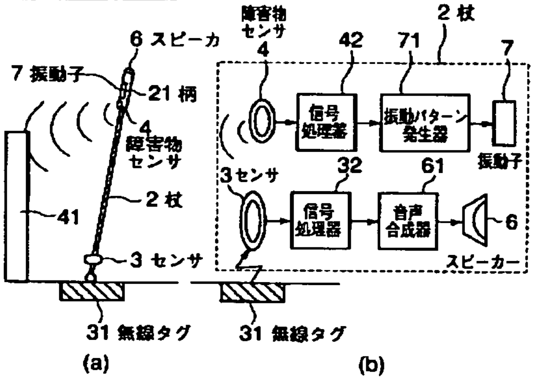
[Drawing 27]


9 送信器
12 スピーカー
10 受信機
21 柄
51
5 CCD カメラ
2 杖
(a)
51
2 杖
10 携帯受信機
52
11
12
画像処理器
送信器
受信器
音声合成器
5 CCDカメラ
9
10a
スピーカー 又は イヤホーン
(b)

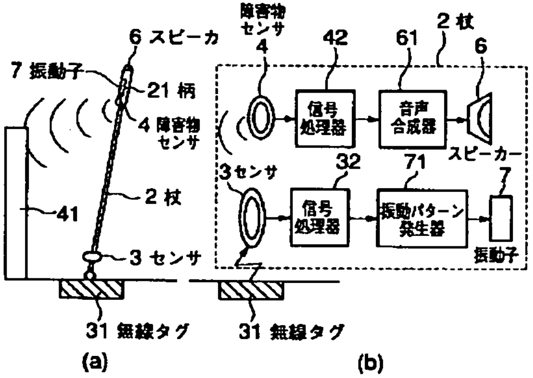
[Drawing 28]


21
1
4 障害物センサ
41
2
3センサ
31 無線タグ

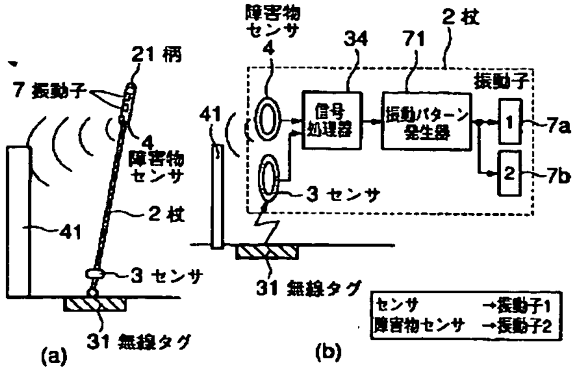
[Drawing 29]


6 スピーカ
7 振動子
21 柄
4 障害物センサ
41
2 杖
3 センサ
31 無線タグ
(a)
障害物センサ 4
42
71
2 杖
7
信号処理器
振動パターン発生器
振動子
3センサ
32
61
信号処理器
音声合成器
6
スピーカー
31 無線タグ
(b)

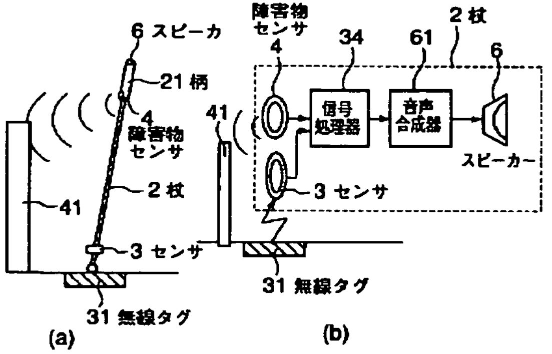
[Drawing 30]


6 スピーカ
7 振動子
21 柄
4 障害物センサ
41
2 杖
3 センサ
31 無線タグ
(a)
障害物センサ 4
42
61
2 杖
6
信号処理器
音声合成器
スピーカー
3センサ
32
71
7
信号処理器
振動パターン発生器
振動子
31 無線タグ
(b)

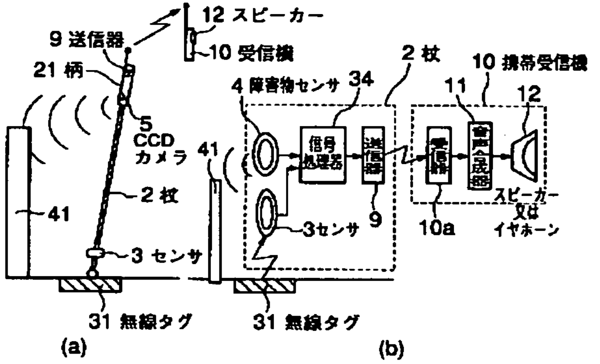
[Drawing 31]


障害物センサ
4
34
71
2 杖
21 柄
7 振動子
振動子
41
信号処理器
振動パターン発生器
1
7a
4
障害物センサ
2
7b
3 センサ
2 杖
41
3 センサ
31 無線タグ
センサ →振動子1
障害物センサ →振動子2
31 無線タグ
(a)
(b)

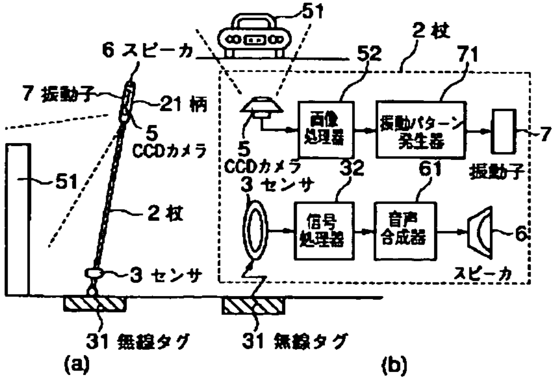
[Drawing 32]


障害物センサ
4
34
61
2 杖
6
6 スピーカ
21 柄
4
障害物センサ
41
信号処理器
音声合成器
スピーカー
3 センサ
2 杖
41
3 センサ
31 無線タグ
31 無線タグ
(a)
(b)

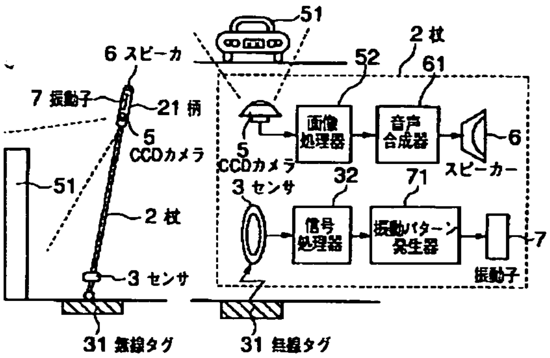
[Drawing 33]


12 スピーカー
9 送信器
10 受信機
21 柄
2 杖
10 携帯受信機
4 障害物センサ
34
11
12
5
CCD
カメラ
41
信号処理器
送信器
受信器
音声合成器
2 杖
41
3センサ
9
10a
スピーカー又はイヤホーン
3 センサ
31 無線タグ
31 無線タグ
(a)
(b)

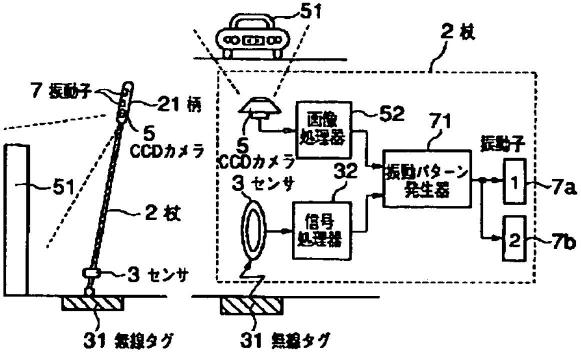
[Drawing 34]


51
2 杖
6 スピーカ
52
71
7 振動子
21 柄
5
CCDカメラ
画像処理器
振動パターン発生器
7
5
CCDカメラ
振動子
51
3 センサ
32
61
2 杖
信号処理器
音声合成器
6
スピーカ
3 センサ
31 無線タグ
31 無線タグ
(a)
(b)

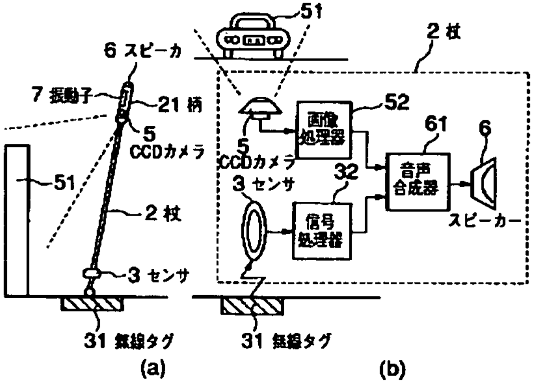
[Drawing 35]


51
6 スピーカ
7 振動子
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
2 杖
52
61
5 CCDカメラ
画像処理器
音声合成器
6
スピーカー
3 センサ
32
71
信号処理器
振動パターン発生器
7
振動子
31 無線タグ

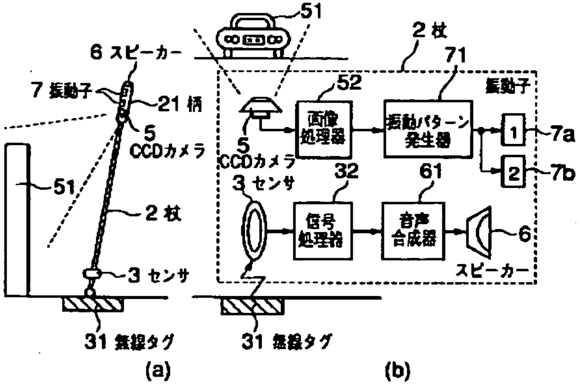
[Drawing 36]


51
7 振動子
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
2 杖
5 CCDカメラ
画像処理器
52
71
振動子
3 センサ
32
振動パターン発生器
1
7a
信号処理器
2
7b
31 無線タグ

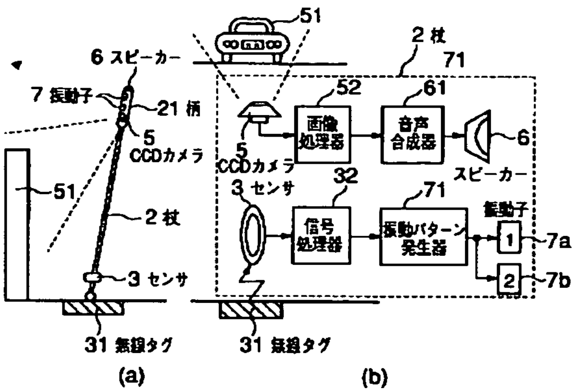
[Drawing 37]


51
6 スピーカ
7 振動子
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
(a)
2 杖
5 CCDカメラ
画像処理器
52
61
6
3 センサ
32
音声合成器
スピーカー
信号処理器
31 無線タグ
(b)

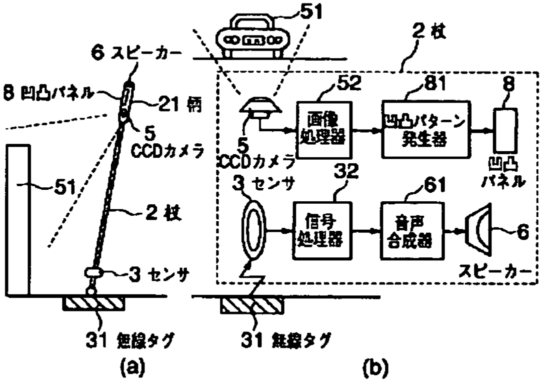
[Drawing 38]


51
6 スピーカー
7 振動子
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
(a)
2 杖
71
52
振動子
画像処理器
振動パターン発生器
1
7a
2
7b
5 CCDカメラ
3 センサ
32
61
信号処理器
音声合成器
6
スピーカー
31 無線タグ
(b)

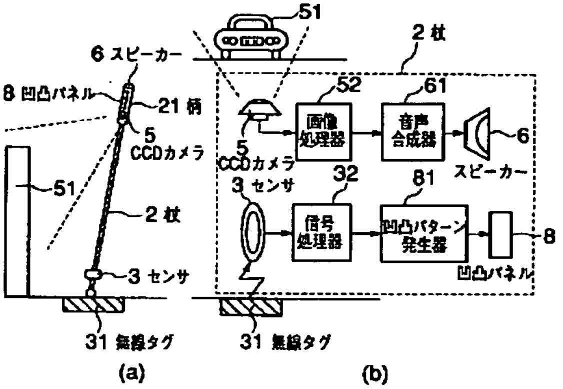
[Drawing 39]


51
6 スピーカー
7 振動子
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
(a)
2 杖
71
52
61
画像処理器
音声合成器
6
5 CCDカメラ
スピーカー
3 センサ
32
71
振動子
信号処理器
振動パターン発生器
1
7a
2
7b
31 無線タグ
(b)

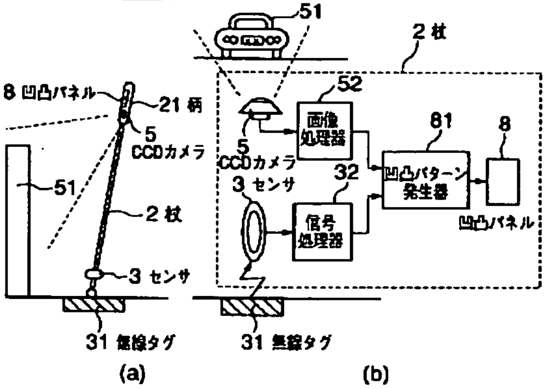
[Drawing 40]


51
6 スピーカー
8 凹凸パネル
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
(a)
2 杖
52
81
8
画像処理器
凹凸パターン発生器
凹凸パネル
5 CCDカメラ
3 センサ
32
61
信号処理器
音声合成器
6
スピーカー
31 無線タグ
(b)

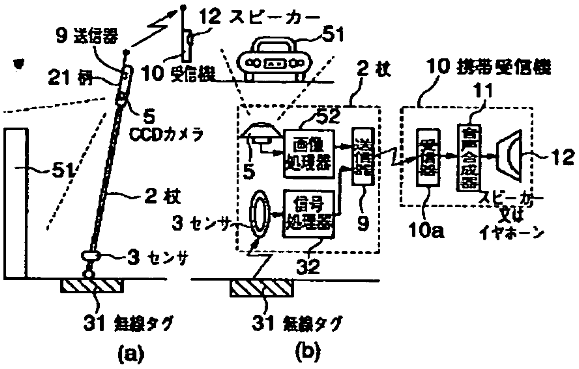
[Drawing 41]


51
6 スピーカー
8 凹凸パネル
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
(a)
2 杖
52
61
画像処理器
音声合成器
6
5 CCDカメラ
スピーカー
3 センサ
32
81
信号処理器
凹凸パターン発生器
8
凹凸パネル
31 無線タグ
(b)

[Drawing 42]


51
2 杖
8 凹凸パネル
21 柄
5 CCDカメラ
51
2 杖
3 センサ
31 無線タグ
(a)
52
画像処理器
81
8
5 CCDカメラ
3 センサ
32
凹凸パターン発生器
凹凸パネル
信号処理器
31 無線タグ
(b)

[Drawing 43]


9 送信器
12 スピーカー
10 受信機
51
21 柄
5
CCDカメラ
51
2 杖
3 センサ
31 無線タグ
(a)
2 杖
10 携帯受信機
11
52
画像処理器
送信器
受信器
音声合成器
12
5
信号処理器
3 センサ
9
10a
スピーカー又はイヤホーン
32
31 無線タグ
(b)

[Translation done.]